



Operator	Effect	Input	Process	Output
M	Changes small dark figures (see examples)		M	
N	Deletes 1st figure		N	
O	Changes size and shape of light figures		O	
			O	

ONO?

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Operator	Effect	Input	Process	Output
H	Changes 1st figure (see examples)			
I	Changes size and shading of large light figures			
J	Changes shading and shape of all figures			

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H

I

J

- ☐
- ☐
- ☐
- ☐

Difficulty: Hard (35)



Operator	Effect	Input	Process	Output
C	Swaps 2nd and 1st figure		C	
D	Duplicates large figures		D	
E	Changes size and shading of 2nd figure		E F	
F	Changes size and shape of 2nd figure		F E	

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- ☐
- ☐





Operator	Effect	Input	Process	Output
A	Changes 4th figure (see examples)		A	
B	Changes shape of 2nd figure		B	
C	Changes size and shading of triangles		C	
			B	

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C

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Operator	Effect
<div>Q</div>	Changes size of 1st figure
<div>R</div>	Changes 3rd figure (see examples)

Input	Process	Output
	<div>Q</div>	
	<div>R</div>	
	<div>Q</div>	

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R

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Operator	Effect	Input	Process	Output
<div>H</div>	Duplicates light figures	<div><div></div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div><div></div><div></div></div>
<div>I</div>	Deletes dark circles	<div><div></div><div></div></div>	<div>I</div>	<div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div><div></div><div></div><div></div><div></div></div>

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H



Operator	Effect	Input	Process	Output
M	Changes 1st figure (see examples)		M	
N	Changes size and shading of small light figures		N	
O	Swaps 3rd and 1st figure			
P	Duplicates 3rd figure			

P

N

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Operator	Effect	Input	Process	Output
T	Changes 1st figure (see examples)			
U	Changes 2nd figure (see examples)			
V	Changes 3rd figure (see examples)			

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VU

V

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Operator	Effect	Input	Process	Output
<div><div>O</div></div>	Deletes small light figures		<div><div>O</div></div>	
<div><div>P</div></div>	Duplicates 3rd figure		<div><div>P</div></div>	
<div><div>O</div></div>			<div><div>O</div></div>	
<div><div>P</div></div>			<div><div>P</div></div>	

O

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Operator	Effect	Input	Process	Output
<div>I</div>	Changes 3rd figure (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>I</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
<div>J</div>	Changes 1st figure (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

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I

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Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
D	Changes shape of light circles		D	
E	Swaps figures (see examples)		E	
F	Duplicates 2nd figure		F G	
G	Changes shading of 2nd figure		G F	

E

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Operator	Effect	Input	Process	Output
A	Changes size and shading of large light circles		A	
B			B	
			B	
			A	

B

A

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Operator	Effect	Input	Process	Output
N	Changes size and shading of dark figures		N	
O	Changes 1st figure (see examples)		O	
P	Changes shading of all figures		P	
Q	Changes triangles (see examples)		Q	

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Operator	Effect	Input	Process	Output
G	Changes size and shading of small light figures			
H	Changes shape of small light circles			
I	Duplicates small light figures			
J	Changes size and shading of 4th figure			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Duplicates large figures Changes size of 4th figure	<div><div><div></div><div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div>	<div><div>K</div><div>L</div></div>	<div><div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div>

K

L

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Operator	Effect	Input	Process	Output
U	Swaps figures (see examples)			
V	Changes size of all figures			
W	Changes size and shading of all figures			
X	Duplicates 1st figure			

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Difficulty: Hard (30)



Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	Duplicates 4th figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>E</div>	<div><div><div></div><div></div><div></div><div></div><div></div></div></div>
	Changes size of 1st figure	<div><div><div></div><div></div></div></div>	<div>F</div>	<div><div><div></div><div></div></div></div>

F

E

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Operator	Effect	Input	Process	Output
<div>D</div>	Changes large figures (see examples)		<div>D</div>	
<div>E</div>	Deletes 2nd figure		<div>E</div>	
<div>F</div>	Changes size of 2nd figure		<div>F</div> <div>G</div>	
<div>G</div>	Changes 2nd figure (see examples)		<div>G</div> <div>F</div>	

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F

G

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Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	Duplicates 2nd figure	<div><div></div><div></div><div></div></div>	<div>B</div>	<div><div></div><div></div><div></div><div></div></div>
	Duplicates 1st figure	<div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div><div></div></div>

C

B







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- ☐



Operator	Effect	Input	Process	Output
K	Swaps figures (see examples)		K	
L	Changes 2nd figure (see examples)		L	
M	Changes size of all figures		M	
N	Duplicates 2nd figure		N	

 **M** **N** ?

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Operator	Effect	Input	Process	Output
S	(see examples)			
T	Changes shading and shape of 1st figure			
U	Swaps figures (see examples)			
V	Changes shading of small triangles			

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V

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- ☐



Operator	Effect
<div><div>R</div><div>S</div></div>	Changes shading and shape of 2nd figure
	Changes 1st figure (see examples)

Input	Process	Output
	<div>R</div>	
	<div>S</div>	
	<div>S</div>	

?

S

R

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Operator	Effect	Input	Process	Output
B	Changes shading of 1st figure		B	
C	Duplicates 3rd figure		C	
D	Duplicates 1st figure		D	
			B	

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C

B

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Operator	Effect	Input	Process	Output
N	Swaps 3rd and 2nd figure		N	
O	Changes shading and shape of 1st figure		O	
P	Changes shading of all figures		P	
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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Changes shading of 2nd figure		<div>K</div>	
	Duplicates 1st figure		<div>L</div>	
			<div>L</div>	
			<div>L</div>	

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K

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- ☐



Operator	Effect	Input	Process	Output
U	Deletes 2nd figure		U	
V	Duplicates large triangles		V	
W	Duplicates 2nd figure		W	

W ?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Duplicates 1st figure		Q	
	Changes shading of all figures		R	
			Q	

Q

R

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- ☐





Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div></div>	Duplicates 1st figure Swaps figures (see examples)	<div><div><div></div><div></div><div></div></div></div>	<div><div>D</div></div>	<div><div><div><div></div><div></div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div><div>E</div></div>	<div><div><div><div></div><div></div></div><div></div><div></div></div></div>

E

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Operator	Effect	Input	Process	Output
H	Changes shading of all figures		H	
I	Duplicates 1st figure		I	
J	Changes shading and shape of 4th figure		J	
			J I	

I

H

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Deletes light figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>I</div>	<div><div><div></div><div></div><div></div></div></div>
	Duplicates light figures	<div><div><div></div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div><div></div></div></div>

J

I

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Operator	Effect	Input	Process	Output
<div>S</div>	Swaps figures (see examples)	<div><div></div><div></div></div>	<div>S</div>	<div><div></div><div></div></div>
<div>T</div>	Changes shading and shape of 3rd figure	<div><div></div><div></div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div><div></div><div></div></div>

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Operator	Effect	Input	Process	Output
<div><div>B</div></div>	Deletes large triangles		<div><div>B</div></div>	
<div><div>C</div></div>	Duplicates 3rd figure		<div><div>C</div></div>	
<div><div>D</div></div>	Changes size and shape of 2nd figure		<div><div>D</div></div>	
			<div><div>C</div></div>	

C

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Operator	Effect	Input	Process	Output
A	Changes size and shading of all figures		A	
B	Duplicates small light figures		B	
C	Duplicates 3rd figure		C	
			B	

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A

C

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- ☐
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Operator	Effect	Input	Process	Output
P	Swaps figures (see examples)		P	
Q	Changes size and shape of 2nd figure		Q	
R	Duplicates 3rd figure		R	
S	Changes 2nd figure (see examples)		S	

R ?

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- ☐
- ☐

Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
R	Duplicates large light triangles		R	
S	Duplicates small light figures		S	
T	Deletes 2nd figure		T U	Nothing
U	Deletes dark figures		U T	

R

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Duplicates 1st figure		<div>G</div>	
	Changes shape of 2nd figure		<div>H</div>	
			<div>G</div>	
			<div>G</div>	

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G

H

G

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Operator	Effect	Input	Process	Output
M	Changes size and shading of 3rd figure			
N	Deletes 2nd figure			
O	Changes light figures (see examples)			

MN?

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Operator	Effect	Input	Process	Output
A	Changes 1st figure (see examples)		A	
B	Changes shading and shape of all figures		B	
C	Swaps 1st and 4th figure		C	

?

B

A





Operator	Effect	Input	Process	Output
F	Changes size and shape of 1st figure		F	
G	Changes small dark triangles (see examples)		G	
H	Changes large figures (see examples)		H	
			G	

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G

F

H

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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div><div>Q</div></div>	Changes shading and shape of 3rd figure		<div>O</div>	
	Deletes 3rd figure		<div>P</div>	
	Deletes 2nd figure		<div>Q</div>	
			<div>Q</div>	

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P

O

P

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Operator	Effect	Input	Process	Output
T	Duplicates 3rd figure		T	
U	(see examples)		U	
V	Changes 3rd figure (see examples)		V W	
W	Changes 1st figure (see examples)			

? W

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Operator	Effect	Input	Process	Output
J	Changes shape of 2nd figure		J	
K	(see examples)		K	
L	Duplicates 1st figure		L	

LJL?

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Operator	Effect	Input	Process	Output
C	Changes size of 1st figure		C	
D	Changes large light figures (see examples)		D	
E	Swaps 2nd and 1st figure		E	
			E D	

EDE ?

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	Changes size and shape of triangles	<div><div>triangle</div><div>circle</div><div>circle</div><div>circle</div></div>	U	<div><div>circle</div><div>circle</div><div>circle</div><div>circle</div></div>
	Changes small figures (see examples)	<div><div>triangle</div><div>circle</div><div>triangle</div><div>circle</div></div>	V	<div><div>triangle</div><div>circle</div><div>triangle</div><div>circle</div></div>
		<div><div>triangle</div><div>triangle</div><div>triangle</div><div>circle</div></div>	V	<div><div>triangle</div><div>triangle</div><div>triangle</div><div>circle</div></div>

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triangle

triangle

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circle

triangle

triangle



Operator	Effect	Input	Process	Output
N	Deletes 1st figure		N	
O	Swaps figures (see examples)		O	
P	Changes shape of all figures		P Q	
Q	Duplicates 2nd figure		Q P	

Q

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Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Changes size of large figures Changes 2nd figure (see examples)	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div><div>F</div><div>G</div></div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

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F

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	<div>Changes shading and shape of large figures</div> <div>Changes 3rd figure (see examples)</div>	<div><div></div><div></div><div></div></div>	<div><div>U</div><div>V</div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>

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V

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Operator	Effect	Input	Process	Output
<div><div>V</div></div>	Changes shape of 1st figure		<div><div>V</div></div>	
<div><div>W</div></div>	Duplicates small figures		<div><div>W</div></div>	
<div><div>X</div></div>	Duplicates 1st figure		<div><div>X</div></div>	
			<div><div>X</div></div>	

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X

V

W

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>(see examples)</div> <div>Changes size of small circles</div>	<div><div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div></div>	<div>K</div> <div>L</div> <div>L</div>	<div><div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div></div>

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Operator	Effect	Input	Process	Output
R	Changes 1st figure (see examples)		R	
S	Deletes large figures		S	
T	Changes size and shading of large figures		T	

T

R

T

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Operator	Effect	Input	Process	Output
Q	Changes small circles (see examples)		Q	
R	Deletes 2nd figure		R	
S	Changes shading and shape of light figures		S	
			Q	

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	Duplicates 3rd figure (see examples) Changes shape of all figures	<div><div><div></div><div></div><div></div></div></div>	<div><div>G</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>H</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div><div>I</div></div>	<div><div><div></div><div></div></div></div>

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Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div><div>S</div></div>	Changes size and shape of 3rd figure		<div>Q</div>	
	Changes shading of all figures		<div>R</div>	
	Duplicates 4th figure		<div>S</div>	

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R

Q

R

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Difficulty: Hard (33)



Operator	Effect	Input	Process	Output
I	Changes 1st figure (see examples)		I	
J	Changes small figures (see examples)		J	
K	Changes size of small figures		K	
			I	

K

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- ☐



Operator	Effect	Input	Process	Output
<div><div>V</div></div>	Swaps figures (see examples)		<div><div>V</div></div>	
<div><div>W</div></div>	Swaps 3rd and 2nd figure		<div><div>W</div></div>	
<div><div>X</div></div>	Changes shading and shape of all figures		<div><div>X</div></div>	
			<div><div>X</div></div>	

X

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Operator	Effect	Input	Process	Output
R	Deletes dark figures		R	
S	Duplicates 3rd figure		S	
T	Changes size and shape of all figures		T	
			T S	

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S

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- ☐
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Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	<div>Changes size and shading of all figures</div> <div>Deletes large light figures</div>	<div></div> <div></div>	<div>L</div> <div>M</div>	<div></div> <div></div>

M ?

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Operator	Effect	Input	Process	Output
I	Changes shading of all figures		I	
J	Changes size and shape of 2nd figure		J	
K	Changes 3rd figure (see examples)		K	
			K J	

? K

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>O</div>	Deletes 2nd figure		<div>O</div>	
<div>P</div>	Deletes circles		<div>P</div>	
			<div>O</div>	

O

P

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Operator	Effect	Input	Process	Output
<div>V</div>	Changes 2nd figure (see examples)		<div>V</div>	
<div>W</div>	Duplicates dark triangles		<div>W</div>	
			<div>V</div>	


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V





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Operator	Effect	Input	Process	Output
R	Changes 1st figure (see examples)			
S	Changes small light figures (see examples)			
T	Changes 3rd figure (see examples)			

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- ☐



Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	Duplicates large figures		<div>S</div>	
	Deletes 3rd figure		<div>T</div>	
			<div>S</div>	

S

T

S

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	Changes shape of all figures Deletes 2nd figure	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div><div>S</div><div>T</div></div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

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T

S

T

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Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	(see examples) Changes size of 2nd figure	<div><div></div><div></div></div>	<div><div>I</div><div>J</div></div>	<div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	<div><div>J</div></div>	<div><div></div><div></div><div></div></div>

?

J

I

J

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Changes 1st figure (see examples)		A	
B	Swaps figures (see examples)		B	
C	Changes size and shape of large figures		C	
D	Duplicates 4th figure		D	

?

D

C

D

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Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	Duplicates 2nd figure		M	
	Deletes 2nd figure		N	
			M	
			M	

?




M



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Operator	Effect	Input	Process	Output
<div>N</div>	Changes large dark figures (see examples)		<div>N</div>	
<div>O</div>	Changes 1st figure (see examples)		<div>O</div>	
<div>P</div>	Changes 2nd figure (see examples)		<div>P</div>	
			<div>P</div> <div>O</div>	



N

 ?

- ☐ 
- ☐  
- ☐  
- ☐ 



Operator	Effect	Input	Process	Output
R	Changes size of all figures		R	
S	Swaps figures (see examples)		S	
T	Changes shading and shape of 1st figure		T	

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R

S

R

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Duplicates 3rd figure		N	
	Changes shading and shape of all figures		O	
			N	

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O

N

O

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>M</div>	Deletes large figures		<div>M</div>	
<div>N</div>	Changes size of all figures		<div>N</div>	
			<div>M</div>	
			<div>M</div>	

N

M

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- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Changes shading of all figures</div> <div>Changes shape of 2nd figure</div>	<div></div> <div></div>	<div>G</div> <div>H</div>	<div></div> <div></div>

HG?

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Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	Duplicates 1st figure	<div></div>	<div>C</div>	<div></div>
	Changes shading and shape of dark circles	<div></div>	<div>D</div>	<div></div>

?

C

- ☐

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- ☐
- ☐

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- ☐

Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
D	Swaps 1st and 2nd figure		D	
E	Changes size of 2nd figure		E	
F	Deletes 2nd figure		F	
G	Duplicates 3rd figure		G	

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F

E

- ☐

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- ☐

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- ☐

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Operator

Effect

Input

Process

Output



Duplicates circles

Changes shading and shape of all figures



☐



☐



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Operator	Effect	Input	Process	Output
<div>Q</div>	Swaps 1st and 2nd figure	<div><div>●</div><div>▲</div></div>	<div>Q</div>	<div><div>▲</div><div>●</div></div>
<div>R</div>	Changes size and shading of all figures	<div><div>●</div><div>●</div></div>	<div>R</div>	<div><div>●</div><div>●</div></div>
		<div><div>●</div><div>▲</div><div>●</div></div>	<div>Q</div>	<div><div>▲</div><div>●</div><div>●</div></div>
		<div><div>●</div><div>▲</div><div>▲</div></div>	<div>R</div>	<div><div>●</div><div>▲</div><div>▲</div></div>

?

R

●

●

●

▲

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- ☐

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- ☐

●

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●

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- ☐

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▲

●



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes size of dark figures</div> <div>Changes 1st figure (see examples)</div>	<div><div><div></div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div></div></div>	<div>T</div> <div>U</div>	<div><div><div></div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div></div></div>

U

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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Duplicates light circles	<div><div><div></div><div></div></div></div>	<div>O</div>	<div><div><div></div><div></div><div></div></div></div>
	Changes shape of all figures	<div><div><div></div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>O</div>	<div><div><div></div><div></div><div></div></div></div>

P O P ?

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Swaps figures (see examples)		B	
C	Changes light circles (see examples)		C	
D	Changes 2nd figure (see examples)		D	
			D C	

?

C

B

D

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
	Swaps figures (see examples)			
	Deletes large triangles			
	Changes circles (see examples)			

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
F	Changes size and shape of 1st figure		F	
G	Swaps figures (see examples)		G	
H	Changes large dark figures (see examples)		H	

?

G

- ☐

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
U	Changes 2nd figure (see examples)			
V	Changes size of 3rd figure			
W	Changes 1st figure (see examples)			

WVW?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div><div>R</div></div>	Changes shading and shape of 1st figure		<div>P</div>	
	Changes size and shading of 1st figure		<div>Q</div>	
	Changes shape of 1st figure		<div>R</div>	
			<div>RQ</div>	

?

R


Q

P




- ☐



- ☐



✓

🤖
- ☐


- ☐





Operator	Effect	Input	Process	Output
C	(see examples)			
D	Changes shape of 2nd figure			
E	Changes 4th figure (see examples)			
F	Changes shape of dark triangles			

?

E

D

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>M</div>	Swaps figures (see examples)	<div><div>△</div><div>◯</div></div>	<div>M</div>	<div><div>◯</div><div>△</div></div>
<div>N</div>	Changes 1st figure (see examples)	<div><div>△</div><div>◯</div><div>◯</div></div>	<div>N</div>	<div><div>△</div><div>◯</div><div>◯</div></div>

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N

△

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- ☐

△
- ☐

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◯
- ☐

△

◯

◯
- ☐

△

◯



Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
L	Deletes dark circles		L	
M	Changes shape of 2nd figure		M	
N	Changes size of 2nd figure		N	
			L	

M

L

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
O	Swaps figures (see examples)		O	
P	Changes size and shape of small light triangles		P	
Q	Changes 4th figure (see examples)		Q R	
R	Changes 1st figure (see examples)			

R

O

?

- ☐
- ☐
- ☐
- ☐
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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>(see examples)</div> <div>Changes size and shape of all figures</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>G</div> <div>H</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

?

G

H

G

- ☐

✓
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div><div>H</div></div>	Swaps figures (see examples)		<div>F</div>	
	Changes shape of 4th figure		<div>G</div>	
	Duplicates 1st figure		<div>H</div>	

?

H

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Operator	Effect	Input	Process	Output
S	Duplicates dark figures			
T	Changes size of light figures			
U	Changes size and shape of 2nd figure			
V	Swaps figures (see examples)			

?

T

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	<div>Changes shape of all figures</div> <div>Changes size and shape of all figures</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>	<div>V</div> <div>W</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>

WV?

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-
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Operator	Effect	Input	Process	Output
T	Swaps figures (see examples)		T	
U	Changes shading and shape of all figures		U	
V	Changes size and shading of all figures		V W	
W	Changes size of 1st figure		W V	

W

?

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>A</div>	Duplicates light triangles	<div><div>triangle</div><div>circle</div></div>	<div>A</div>	<div><div>triangle</div><div>triangle</div><div>circle</div></div>
<div>B</div>	Changes shape of all figures	<div><div>triangle</div><div>circle</div></div>	<div>B</div>	<div><div>circle</div><div>triangle</div></div>

circle

triangle

circle

circle

B

A

?

- ☐

triangle

circle

triangle

triangle

triangle

triangle

✓
- ☐

triangle

circle

circle

triangle

triangle

triangle

triangle

triangle

triangle

triangle

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- ☐

triangle

circle

triangle

triangle

triangle

triangle

triangle

triangle

triangle
- ☐

triangle

triangle

triangle

circle

triangle

triangle



Operator	Effect	Input	Process	Output
<div>S</div>	Changes shading of all figures	<div><div></div><div></div></div>	<div>S</div>	<div><div></div><div></div></div>
<div>T</div>	Changes 2nd figure (see examples)	<div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div></div>
<div>U</div>	Duplicates 1st figure	<div><div></div><div></div></div>	<div>U</div>	<div><div></div><div></div><div></div></div>

?

T

Difficulty: Very Easy (8)



ator	Effect	Input	Process	Output
	Changes shading and shape of all figures			
	Deletes 2nd figure			
	Changes size and shape of 3rd figure			
	Duplicates large figures			

?

V

X

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
P	Changes size and shape of all figures		P	
Q	Deletes 3rd figure		Q	
R	Deletes light triangles		R	

?

R

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>T</div>	Changes 3rd figure (see examples)		<div>T</div>	
<div>U</div>	Changes size of all figures		<div>U</div>	
<div>V</div>	Changes 2nd figure (see examples)		<div>V</div>	
			<div>V</div> <div>U</div>	

?

U

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	<div>Changes shading and shape of all figures</div> <div>Changes shape of all figures</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div><div>L</div><div>M</div></div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div><div><div></div><div></div></div></div>

?

M

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>B</div>	Changes size and shape of triangles	<div></div>	<div>B</div>	<div></div>
<div>C</div>	Deletes 3rd figure	<div></div>	<div>C</div>	<div></div>

?

C

B

C

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
V	Deletes large circles		V	
W	Changes 1st figure (see examples)		W	
X	Changes 3rd figure (see examples)	Nothing	Nothing	Nothing
Y	Changes shading of 1st figure		Y X	

?

Y

W

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Changes 2nd figure (see examples)		<div>T</div>	
	Changes 1st figure (see examples)		<div>U</div>	
			<div>T</div>	
			<div>T</div>	

?

U

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Changes 2nd figure (see examples)		M	
N	Duplicates small triangles		N	
O	Changes 3rd figure (see examples)		O	

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N

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div><div>M</div></div>	Changes dark figures (see examples)		<div>K</div>	
	Deletes small light figures		<div>L</div>	
	Changes circles (see examples)		<div>M</div>	

?

K

M

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	Duplicates dark figures		U	
	Swaps figures (see examples)		V	
			U	

?

U

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
R	(see examples)		R	
S	Changes 2nd figure (see examples)		S	
T	Changes dark triangles (see examples)		T	
			TS	

R

T

S

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
H	Changes 1st figure (see examples)		H	
I	Changes 2nd figure (see examples)		I	
J	Changes circles (see examples)		J	
K	Changes size and shape of 2nd figure		K	

?

H

J

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	<div>(see examples)</div> <div>Changes 1st figure (see examples)</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>N</div> <div>O</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

O

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- ☐
- ☐

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Operator	Effect	Input	Process	Output
<div>O</div>	Duplicates small dark triangles		<div>O</div>	
<div>P</div>	Changes size and shading of all figures		<div>P</div>	
<div>Q</div>	Duplicates 2nd figure		<div>Q</div>	
<div>R</div>	Changes shading and shape of all figures		<div>R</div>	

?

Q

P

Q

- ☐
- ☐

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- ☐
- ☐

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Operator	Effect	Input	Process	Output
F	Swaps 2nd and 1st figure		F	
G	Changes size and shape of 3rd figure		G	
H	Changes shape of 1st figure		H	

?

F

G

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>G</div>	Changes shading of all figures		<div>G</div>	
<div>H</div>	Deletes light figures		<div>H</div>	
<div>I</div>	Changes small circles (see examples)		<div>I</div>	
<div>J</div>	Changes shape of all figures		<div>J</div>	

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J

I

G

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Operator	Effect	Input	Process	Output
<div>Q</div>	Duplicates dark figures		<div>Q</div>	
<div>R</div>	Duplicates 4th figure		<div>R</div>	

?

Q

R

Q

- ☐
- ☐
- ☐

✓🤖
- ☐

Difficulty: Hard (42)



Operator	Effect	Input	Process	Output
H	Changes shading of all figures		H	
I	Duplicates 2nd figure		I	
J	Changes size and shape of all figures		J	
			H	

? H J

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Deletes small dark circles		M	
N	Duplicates 3rd figure		N	
O	Changes 4th figure (see examples)		O	

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
K	Changes size and shading of all figures		K	
L	Swaps 1st and 3rd figure		L	
M	Changes shape of all figures		M	

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K

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Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
L	Changes shading of small circles		L	
M	Deletes 2nd figure		M	
N	Swaps 1st and 2nd figure		N O	
O	Swaps figures (see examples)		O N	

? O L N

- ☐
- ☒
- ☐
- ☐



Operator	Effect	Input	Process	Output
F	Changes size and shading of 4th figure		F	
G	Changes shading of dark figures		G	
H	Duplicates small figures		H	
			H G	

?

H

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
R	Swaps 4th and 2nd figure		R	
S	Changes 2nd figure (see examples)		S	
T	Changes size of all figures		T	
U	Changes shading and shape of all figures		U	

?

U

T

- ☐

✓
- ☐

🚗
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Swaps 1st and 2nd figure		A	
B	Changes size of 2nd figure		B	
C	Changes circles (see examples)		C	

CBC?

- ☐
- ☐
- ☒

✓🤖
- ☐



Operator	Effect	Input	Process	Output
A	Changes size of 4th figure		A	
B	Duplicates small figures		B	
C	Duplicates 4th figure		C	

?

B

A

- ☐

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div>G</div>	Changes shape of all figures		<div>G</div>	
<div>H</div>	Changes shading of 1st figure		<div>H</div>	
<div>I</div>	Changes large circles (see examples)		<div>I</div>	
<div>J</div>	Changes circles (see examples)		<div>J</div>	

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H

I

H

- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Changes 2nd figure (see examples)		<div>S</div>	
<div>T</div>	Changes size of 2nd figure		<div>T</div>	
<div>U</div>	Duplicates 2nd figure		<div>U</div>	

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U

T

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- ☐



Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	Changes small dark figures (see examples)		<div><div>B</div></div>	
	Deletes 1st figure		<div><div>C</div></div>	

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C

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Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
<div>J</div>	Changes shading and shape of 2nd figure	<div></div>	<div>J</div>	<div></div>
<div>K</div>	Changes 3rd figure (see examples)	<div></div>	<div>K</div>	<div></div>
		<div></div>	<div>J</div>	<div></div>
		<div></div>	<div>K</div>	<div></div>

?

J

K

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
V	Deletes 2nd figure		V	
W	Changes shading of all figures		W	
X	Duplicates 2nd figure		X	
Y	Deletes 3rd figure		Y	

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X

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Operator	Effect	Input	Process	Output
A	Swaps 3rd and 4th figure			
B	(see examples)			
C	Duplicates 1st figure			

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	Deletes 2nd figure		R	
	Changes shape of all figures		S	
			S	

R

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
E	Changes size and shading of all figures		E	
F	Changes small light figures (see examples)		F	
G	Changes 3rd figure (see examples)		G	

E

F

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Duplicates light triangles	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>L</div><div>M</div></div>	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

?

M

L

M

- ☐
- ☐
- ☒

✓

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- ☐



Operator	Effect	Input	Process	Output
G	Changes shading of 2nd figure		G	
H	Swaps figures (see examples)		H	
I	Changes circles (see examples)		I J	
J	Changes 2nd figure (see examples)		J I	

? J

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Changes circles (see examples)		<div>S</div>	
<div>T</div>	Changes shading and shape of 1st figure		<div>T</div>	
<div>U</div>	Changes size and shape of 3rd figure		<div>U</div>	
			<div>UT</div>	

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T

- ☐
- ☐

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- ☒



✅
- ☐



Operator	Effect	Input	Process	Output
B	Changes 3rd figure (see examples)		B	
C	Duplicates small figures		C	
D	Deletes 2nd figure		D E	
E	Duplicates 1st figure		E D	

 **E D** ?

☐ 


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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	<div>Changes size of 1st figure</div> <div>Swaps 2nd and 1st figure</div>	<div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div>O</div> <div>P</div>	<div><div></div><div></div></div> <div><div></div><div></div><div></div></div>

P

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- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	<div>Changes size and shape of all figures</div> <div>Changes size and shape of all figures</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>L</div> <div>M</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

L

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Operator	Effect	Input	Process	Output
<div>D</div>	Changes shading and shape of light circles	<div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div></div>
<div>E</div>	Changes 1st figure (see examples)	<div><div></div><div></div></div>	<div>E</div>	<div><div></div><div></div></div>
<div>F</div>	Swaps figures (see examples)	<div><div></div><div></div><div></div></div>	<div>F</div>	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	<div>F</div> <div>E</div>	<div><div></div><div></div><div></div><div></div></div>

?

E

F

✓

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Difficulty: Intermediate (18)



Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Duplicates 1st figure	<div><div><div></div><div></div></div></div>	<div>N</div>	<div><div><div></div><div></div><div></div></div></div>
	Deletes 3rd figure	<div><div><div></div><div></div><div></div></div></div>	<div>O</div>	<div><div><div></div><div></div></div></div>

?

N

O

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🤖



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Changes shape of all figures		T	
	Changes shading of circles		U	
			U	
			U	

?

U

T

- ☐

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- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	(see examples)	<div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div></div>
	Changes shading of all figures	<div><div></div><div></div></div>	<div>I</div>	<div><div></div><div></div></div>
		<div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div></div>
		<div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div></div>

I

H

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div></div>	Duplicates large light figures		<div>D</div>	
	Duplicates 3rd figure		<div>E</div>	
			<div>D</div>	
			<div>D</div>	

?

E

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- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
P	Changes 1st figure (see examples)		P	
Q	Changes shading and shape of all figures		Q	
R	Changes 3rd figure (see examples)		R	
S	Deletes small light figures		S	

R

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- ☐
- ☐
- ☐
- ☒



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Deletes 2nd figure	<div><div><div></div><div></div></div></div>	<div>I</div>	<div><div><div></div></div></div>
	Changes shape of all figures	<div><div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div><div></div></div></div>

I

J

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Operator	Effect	Input	Process	Output
D	Swaps figures (see examples)		D	
E	Swaps 1st and 2nd figure		E	
F	Changes size and shape of 3rd figure		F G	
G	Duplicates circles		G F	

E ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
P	Changes large triangles (see examples)			
Q	Swaps 2nd and 4th figure			
R	Deletes large light triangles			
S	Changes shading of all figures			

R

S

?

- ☐
- ☐
- ☐
- ☐
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Operator	Effect	Input	Process	Output
F	Changes shading of all figures		F	
G	Changes triangles (see examples)		G	
H	Changes size of 1st figure		H	
			H G	

?

F

G

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Changes 2nd figure (see examples)	<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div></div></div>
	Changes size of 2nd figure	<div><div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div></div></div>

Q

P

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- ☐
- ☐

☐

☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	(see examples) Changes size and shading of all figures	<div><div><div></div><div></div></div></div>	<div>K</div>	<div><div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>K</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div></div></div></div>

K

L

K

?

- ☐

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	Changes size and shape of 1st figure	<div><div><div></div><div></div></div></div>	<div><div>R</div></div>	<div><div><div></div><div></div></div></div>
	Changes 4th figure (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>S</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>

?

R

S























R

- ☐
- ☐
- ☐
- ☐

✓

Difficulty: Hard (36)



Operator	Effect	Input	Process	Output
<div>J</div>	Changes 2nd figure (see examples)	<div></div>	<div>J</div>	<div></div>
<div>K</div>	Changes shape of light figures	<div></div>	<div>K</div>	<div></div>
		<div></div>	<div>K</div>	<div></div>
		<div></div>	<div>K</div>	<div></div>

?






K





J





K







- ☐


- ☐


- ☐


- ☐







Operator	Effect	Input	Process	Output
R	Changes shading and shape of all figures		R	
S	Changes size and shading of 3rd figure		S	
T	Changes size of 2nd figure		T	
			T S	

S T ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Changes light figures (see examples)		N	
	Changes shading of 2nd figure		O	
			O	

?

N

O

- ☐
- ☐
- ☐

✓
- ☐



Operator	Effect	Input	Process	Output
E	Duplicates large figures		E	
F	Duplicates 2nd figure		F	
G	Duplicates circles		G	
H	Changes shape of all figures		H	

?

E

F

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
C	Changes 2nd figure (see examples)		C	
D	Changes size and shape of all figures		D	
E	Changes shading of circles		E	

C E ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>(see examples)</div> <div>Changes size and shape of 2nd figure</div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div></div>	<div>K</div> <div>L</div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div></div>

L

K

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Changes shading of all figures		A	
B	Deletes 3rd figure		B	
C	Duplicates 2nd figure		C D	
D	Changes shape of all figures		D C	

?

A

D

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
N	Deletes 3rd figure		N	
O	Duplicates 1st figure		O	
P	Changes size and shading of 4th figure		P	
			P O	

O

N

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Deletes 2nd figure		B	
C	(see examples)		C	
D	Changes circles (see examples)	Nothing		Nothing
E	Changes size of 2nd figure		E D	

E ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
K	(see examples)		K	
L	Duplicates 2nd figure		L	
M	Changes 2nd figure (see examples)	Nothing	Nothing	Nothing
N	Swaps 3rd and 1st figure		N M	

- ☐
- ☐
- ☐
- ☒



Operator	Effect	Input	Process	Output
N	Swaps figures (see examples)		N	
O	Changes size and shape of all figures		O	
P	Deletes light figures		P Q	
Q	Changes shape of all figures		Q P	

?

N

O

N

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Operator	Effect	Input	Process	Output
<div>G</div>	Swaps 1st and 2nd figure		<div>G</div>	
<div>H</div>	(see examples)		<div>H</div>	
<div>I</div>	Changes 1st figure (see examples)		<div>I</div>	
<div>J</div>	Swaps figures (see examples)		<div>J</div>	

?

H

- ☐
- ☐
- ☐
- ☐

✓



Operator	Effect	Input	Process	Output
<div>S</div>	Deletes 2nd figure	<div><div></div><div></div><div></div></div>	<div>S</div>	<div><div></div><div></div></div>
<div>T</div>	Duplicates 1st figure	<div><div></div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div><div></div></div>

?

S

✓



Operator	Effect	Input	Process	Output
<div>H</div>	Changes size of small circles	<div><div>triangle</div><div>small circle</div><div>large circle</div></div>	<div>H</div>	<div><div>triangle</div><div>large circle</div><div>large circle</div></div>
<div>I</div>	Changes shading of all figures	<div><div>triangle</div><div>triangle</div></div>	<div>I</div>	<div><div>triangle</div><div>triangle</div></div>
		<div><div>small circle</div><div>large circle</div></div>	<div>H</div>	<div><div>large circle</div><div>large circle</div></div>

?

H

triangle

triangle

large circle

- ☐

triangle

triangle
- ☐

triangle

triangle

small circle
- ☐

triangle

small circle
- ☐

triangle

triangle

triangle

triangle

small circle



Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	<div>Changes size and shading of 3rd figure</div> <div>Changes light circles (see examples)</div>	<div></div> <div></div>	<div>A</div> <div>B</div>	<div></div> <div></div>

?

A

B

A

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
C	Changes light figures (see examples)		C	
D	Swaps figures (see examples)		D	
E	Changes shape of 3rd figure		E	
F	Changes size and shape of all figures		F	

D

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
H	Duplicates 1st figure		H	
I	Deletes circles		I	
J	Changes shading and shape of all figures		J K	
K	Duplicates 3rd figure			

?

J

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Duplicates 3rd figure	<div><div><div></div><div></div><div></div></div></div>	<div>I</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Changes shading and shape of 3rd figure	<div><div><div></div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

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I

J

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Operator	Effect	Input	Process	Output
<div>C</div>	Swaps figures (see examples)	<div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div></div>
<div>D</div>	Changes size and shape of all figures	<div><div></div><div></div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div></div>

?

D

C

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Operator	Effect	Input	Process	Output
J	Duplicates 3rd figure		J	
K	Duplicates 1st figure		K	

?

KJ K

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Duplicates small light circles		M	
N	Duplicates 1st figure		N	
O	Changes size and shading of 2nd figure		O	

?

O

- ☐

☒
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	Swaps figures (see examples)		J	
	Changes size and shading of dark figures		K	
			J	
			K	

K

?

- ☐
- ☐

✓

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>L</div>	Changes size and shading of all figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
<div>M</div>	Changes size and shape of all figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>M</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div></div></div>

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L

M

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Operator	Effect	Input	Process	Output
U	Changes small light figures (see examples)		U	
V	Swaps 1st and 2nd figure		V	
			V	
			U	

VU?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Deletes 2nd figure		M	
N	Deletes large dark figures		N	
O	Changes shape of 2nd figure		O	
P	Deletes small light figures		P	

? O N

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
U	Changes 1st figure (see examples)		U	
V	Duplicates 1st figure		V	
W	Deletes 3rd figure		W	
X	Swaps 3rd and 2nd figure		X	

W ?

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✓



Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Deletes 3rd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>G</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>H</div></div>	Changes size of dark triangles	<div><div><div></div><div></div><div></div></div></div>	<div><div>H</div></div>	<div><div><div></div><div></div></div></div>
<div><div>I</div></div>	Changes light circles (see examples)	<div><div><div></div><div></div><div></div></div></div>	<div><div>I</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>J</div></div>	Deletes dark circles	<div><div><div></div><div></div><div></div></div></div>	<div><div>J</div></div>	<div><div><div></div></div></div>

H

G

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	Changes 1st figure (see examples)		<div>G</div>	
	(see examples)		<div>H</div>	
	Changes size of 3rd figure		<div>I</div>	
			<div>I H</div>	

I

H

I

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
F	Swaps 3rd and 1st figure		F	
G	Deletes 2nd figure		G	
H	Changes size and shading of all figures			
I	Changes shading of 4th figure			

H F ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	<div>Deletes 3rd figure</div> <div>Changes size and shape of 1st figure</div>	<div></div> <div></div>	<div><div>H</div><div>I</div></div>	<div></div> <div></div>

?

I

H

I

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
H	Duplicates 1st figure		H	
I	Changes shape of 1st figure		I	
J	Changes shading of all figures		J K	
K	Duplicates 2nd figure		K J	

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J

I

H

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Changes size of 3rd figure		<div>L</div>	
	Changes shape of 2nd figure		<div>M</div>	
			<div>L</div>	

L

M

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
F	(see examples)		F	
G	Changes size and shape of 2nd figure		G	
H	Deletes small triangles		H	

?

G

F



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	<div>Changes circles (see examples)</div> <div>Changes size and shading of 1st figure</div>	<div></div> <div></div>	<div></div> <div></div>	<div></div> <div></div>

J

I

J

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
H	Duplicates small light figures			
I	Changes 2nd figure (see examples)			
J	Duplicates 3rd figure			
K	Changes size of all figures			

?

H

K

J

- ☐
- ☐

✓
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>R</div>	Swaps figures (see examples)		<div>R</div>	
<div>S</div>	(see examples)		<div>S</div>	
<div>T</div>	Swaps 1st and 2nd figure		<div>T</div>	
			<div>T</div>	

?

S

R

T

- ☐

✓
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Swaps figures (see examples)	<div><div><div></div><div></div></div></div>	<div>T</div>	<div><div><div></div><div></div></div></div>
	Changes dark circles (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>U</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>T</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>T</div>	<div><div><div></div><div></div><div></div></div></div>

U

T

?



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	<div>Deletes 3rd figure</div> <div>Changes shape of small light figures</div>	<div></div> <div></div>	<div>R</div> <div>S</div>	<div></div> <div></div>

?

R

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>J</div> <div>K</div>	(see examples) Deletes light figures	<div><div></div><div></div><div></div><div></div></div>	<div>J</div> <div>K</div> <div>J</div>	<div><div></div><div></div><div></div><div></div></div> <div><div></div></div> <div><div></div><div></div><div></div></div>

? J

- ☐ ✓
- ☐
- ☐ 🤖
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Changes size of all figures		<div>S</div>	
<div>T</div>	Swaps figures (see examples)		<div>T</div>	
			<div>S</div>	

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S

T

- ☐
- ☐

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
E	Changes 3rd figure (see examples)		E	
F	Changes size and shading of 2nd figure		F	
G	Duplicates 1st figure		G H	
H	Changes size and shading of circles		H G	

?

G

H

F

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Duplicates circles		B	
C	Duplicates 1st figure		C	
D	Changes size and shading of large figures		D	
			D C	

? D C B

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	<div>(see examples)</div> <div>Changes shape of 1st figure</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>	<div>B</div> <div>C</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>

?

B

C

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Changes 3rd figure (see examples)		B	
C	Changes size and shading of 3rd figure		C	
D	Deletes 3rd figure		D	

B

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- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
D	Changes shading and shape of 3rd figure		D	
E	Changes size and shading of large light figures		E	
F	Duplicates dark figures		F	
			F E	

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D

F

D

- ☐
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- ☐
- ☐



Operator	Effect	Input	Process	Output
Q	Duplicates 3rd figure		Q	
R	Deletes 4th figure		R	
S	Swaps figures (see examples)		S	
T	Changes size of 1st figure		T	

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T

S

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- ☐
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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Changes size and shading of all figures</div> <div>Changes shading and shape of all figures</div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div></div>	<div><div>G</div><div>H</div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div></div>

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G

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Operator	Effect	Input	Process	Output
L	Changes shading of all figures		L	
M	Swaps figures (see examples)		M	
N	Changes light figures (see examples)		N	

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N

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	Changes shading of large light triangles		<div><div>S</div><div>T</div></div>	
	Duplicates circles		<div><div>S</div><div>T</div></div>	

T

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- ☐
- ☐

Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
N	Deletes 2nd figure		N	
O	Duplicates dark circles		O	
P	Changes shading of all figures		P	
Q	Deletes large figures		Q	











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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Changes shape of 4th figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>K</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Duplicates 2nd figure	<div><div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>K</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

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Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	<div>Changes dark figures (see examples)</div> <div>Changes shading of large figures</div>	<div></div> <div></div>	<div>A</div> <div>B</div>	<div></div> <div></div>

A

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
U	Swaps figures (see examples)		U	
V	Duplicates small dark figures		V	
W	Duplicates 1st figure		W	
X	Changes shape of all figures		X	

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W

X

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Operator	Effect	Input	Process	Output
C	Swaps figures (see examples)		C	
D	Swaps 2nd and 1st figure		D	
E	Changes 1st figure (see examples)		E	
			E D	

?

C

D

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Operator	Effect	Input	Process	Output
A	Changes size of 4th figure		A	
B	Changes size of all figures		B	
C	Changes shading of small light figures		C	

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B

A

B

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
V	Changes size and shading of all figures		V	
W	Changes small circles (see examples)		W	
X	Changes shape of large figures		X Y	
Y	Changes shape of light figures		Y X	

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W

V

X

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>D</div>	Changes 2nd figure (see examples)	<div><div>△</div><div>△</div><div>◯</div></div>	<div>D</div>	<div><div>△</div><div>●</div><div>◯</div></div>
<div>E</div>	Swaps 2nd and 1st figure	<div><div>●</div><div>△</div></div>	<div>E</div>	<div><div>△</div><div>●</div></div>

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D

E

D

△

◯

△

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Operator	Effect	Input	Process	Output
B	Deletes 1st figure		B	
C	Changes shading and shape of all figures		C	
D	Changes light triangles (see examples)		D	
E	Swaps figures (see examples)		E	

?

C

D

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
J	Deletes large figures		J	
K	Changes 1st figure (see examples)		K	
L	Changes size of 3rd figure		L	

K ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	Changes small light triangles (see examples)		<div>G</div>	
	Changes large figures (see examples)		<div>H</div>	
	Changes 1st figure (see examples)		<div>I</div>	
			<div>H</div>	

?

I

H

- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	<div>Deletes 1st figure</div> <div>Changes shading of 3rd figure</div>	<div><div></div><div></div></div>	<div>U</div> <div>V</div>	<div><div></div><div></div></div>

U V U ?

- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div>D</div>	Changes 1st figure (see examples)		<div>D</div>	
<div>E</div>	Swaps 2nd and 1st figure		<div>E</div>	
			<div>D</div>	

?

D


- ☐
- ☐






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- ☐
- ☐



Operator	Effect	Input	Process	Output
I	Swaps figures (see examples)			
J	Deletes 2nd figure			
K	Changes shading and shape of all figures			
L	Changes size of all figures			

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Operator	Effect	Input	Process	Output
<div>D</div>	Changes size of all figures		<div>D</div>	
<div>E</div>	Changes size of 2nd figure		<div>E</div>	
<div>F</div>	Swaps 1st and 2nd figure		<div>F</div>	
			<div>F</div> <div>E</div>	

F

D

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div><div>X</div></div>	Changes 2nd figure (see examples)		<div>V</div>	
	Changes small circles (see examples)		<div>W</div>	
	Changes size and shape of dark circles		<div>X</div>	

X

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Operator	Effect	Input	Process	Output
<div>L</div>	Changes shape of triangles		<div>L</div>	
<div>M</div>	Changes shading and shape of all figures		<div>M</div>	
<div>N</div>	Changes shading of triangles		<div>N</div>	
			<div>N</div> <div>M</div>	

?

M



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Difficulty: Intermediate (10)



Operator	Effect	Input	Process	Output
A	Changes 2nd figure (see examples)		A	
B	Deletes triangles		B	
C	Duplicates 1st figure		C	
			A	

? A

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Changes small triangles (see examples)		M	
N	Deletes 1st figure		N	
O	Deletes circles		O P	
P	Changes shading of large light triangles		P O	

NPN?

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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Swaps figures (see examples)		<div>O</div>	
	Duplicates small dark triangles		<div>P</div>	

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P

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Operator	Effect	Input	Process	Output
<div>C</div>	Changes 2nd figure (see examples)		<div>C</div>	
<div>D</div>	Deletes large triangles		<div>D</div>	
<div>E</div>	Changes size and shape of 2nd figure		<div>E</div>	

E

C

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Operator	Effect	Input	Process	Output
I	Changes shape of all figures		I	
J	Changes shading of all figures		J	
K	Changes size and shading of 2nd figure		K	
			K J	

KJ K

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>C</div>	Swaps 1st and 3rd figure	<div><div></div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div><div></div></div>
<div>D</div>	Changes large triangles (see examples)	<div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div></div>

D

C

D

?



Operator	Effect	Input	Process	Output
M	Changes shape of 3rd figure		M	
N	Changes shading of 2nd figure		N	
O	Deletes 1st figure		O	
			N	

M ?

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- ☐



Operator	Effect	Input	Process	Output
<div>G</div>	Changes size and shading of 1st figure	<div></div>	<div>G</div>	<div></div>
<div>H</div>	Changes size and shading of all figures	<div></div>	<div>H</div>	<div></div>
<div>I</div>	Changes large figures (see examples)	<div></div>	<div>I</div>	<div></div>
<div>J</div>	Swaps figures (see examples)	<div></div>	<div>J</div>	<div></div>

?

G



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Duplicates 1st figure		<div>L</div>	
	Duplicates circles		<div>M</div>	
			<div>M</div>	

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M

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Operator	Effect	Input	Process	Output
<div>G</div>	Deletes 1st figure	<div><div></div><div></div></div>	<div>G</div>	<div><div></div></div>
<div>H</div>	Changes size of all figures	<div><div></div><div></div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div><div></div><div></div></div>
<div>I</div>	Changes light circles (see examples)			
<div>J</div>	Changes small light circles (see examples)			

?

J

I

H



Operator	Effect	Input	Process	Output
Q	Duplicates 3rd figure		Q	
R	Duplicates 2nd figure		R	
S	Deletes large light circles		S	

RQ?





Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Changes shading and shape of all figures	<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div></div></div>
	Changes small dark figures (see examples)	<div><div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div></div></div>

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P

Q

P

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Operator	Effect	Input	Process	Output
<div>H</div>	Changes shading and shape of dark circles		<div>H</div>	
<div>I</div>	Swaps figures (see examples)		<div>I</div>	
<div>J</div>	Deletes 1st figure		<div>J</div>	

H

I

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Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Swaps figures (see examples)		<div>P</div>	
	Changes shape of 1st figure		<div>Q</div>	
			<div>P</div>	
			<div>Q</div>	

P

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- ☐
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- ☐





Operator	Effect	Input	Process	Output
	Swaps 1st and 2nd figure			
	Changes triangles (see examples)			

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Operator	Effect	Input	Process	Output
U	Changes size of 1st figure		U	
V	Changes small circles (see examples)		V	
W	Changes size of 2nd figure		W X	
X	Changes 2nd figure (see examples)		X W	

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UW X

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- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	<div>(see examples)</div> <div>Changes 2nd figure (see examples)</div>	<div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>	<div><div>Q</div><div>R</div></div>	<div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>

R

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- ☐
- ☐
- ☐
- ☐




Operator	Effect	Input	Process	Output
H	Changes light figures (see examples)			
I	Deletes light figures			
J	Duplicates 2nd figure			
K	Changes 1st figure (see examples)			


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Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Swaps figures (see examples)</div> <div>Changes size and shading of 3rd figure</div>	<div></div> <div></div>	<div>E</div> <div>F</div>	<div></div> <div></div>

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F

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- ☐
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Operator	Effect	Input	Process	Output
<div>U</div>	Changes large triangles (see examples)		<div>U</div>	
<div>V</div>	Changes size and shape of all figures		<div>V</div>	
<div>W</div>	Changes shape of light triangles		<div>W</div>	

?

W

V

U

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	<div>Duplicates 3rd figure</div> <div>Changes size and shading of 2nd figure</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>B</div><div>C</div></div>	<div><div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>

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B

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Operator	Effect	Input	Process	Output
O	Duplicates 2nd figure		O	
P	Deletes 1st figure		P	
Q	Changes size and shape of 1st figure		Q R	
R	Changes size and shape of dark figures		R Q	

P R ?

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div></div>	<div>Changes shape of large light circles</div> <div>Deletes dark triangles</div>	<div></div> <div></div>	<div>D</div> <div>E</div>	<div></div> <div></div>

D

E

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Deletes dark figures		M	
N	Changes shape of 1st figure		N	
O	Duplicates triangles		O P	
P	Changes size of light triangles		P O	

NOM ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Changes size of 1st figure		<div>Q</div>	
	Duplicates 2nd figure		<div>R</div>	

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R

Q

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- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
S	Changes shape of 1st figure			
T	(see examples)			
U	Changes size of 3rd figure			
V	Duplicates 1st figure			

?

U

T

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
R	Changes shading of all figures		R	
S	Duplicates 2nd figure		S	
T	Changes shading and shape of all figures		T	
			T S	

?

S

R

S

✓



Operator	Effect	Input	Process	Output
T	Duplicates circles		T	
U	Deletes 1st figure		U	
V	Swaps 2nd and 1st figure		V	
W	Changes shape of 1st figure		W	

W

V

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Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	<div>Changes shape of all figures</div> <div>Changes 2nd figure (see examples)</div>	<div></div> <div></div>	<div><div>Q</div><div>R</div></div>	<div></div> <div></div>

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R

Q

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- ☐
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- ☐





Operator	Effect	Input	Process	Output
E	Changes 1st figure (see examples)		E	
F	Changes size of 2nd figure		F	
G	Changes size and shape of 1st figure		G	
			E	

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F

G

F

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
V	Changes size of 1st figure		V	
W	Duplicates small triangles		W	
X	Changes shading and shape of 1st figure		X	

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>V</div>	Deletes large dark figures	<div></div>	<div>V</div>	<div></div>
<div>W</div>	Changes size and shape of 3rd figure	<div></div>	<div>W</div>	<div></div>
		<div></div>	<div>V</div>	<div></div>
		<div></div>	<div>V</div>	<div></div>

W

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Changes size and shading of all figures		B	
C	Changes size and shading of 2nd figure		C	
D	Changes shading and shape of all figures		D	
			D	

?

C

B

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- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Changes size of all figures	<div><div><div></div><div></div></div></div>	<div>I</div>	<div><div><div></div><div></div></div></div>
	Duplicates 2nd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>J</div>	<div><div><div></div><div></div><div></div><div></div><div></div></div></div>

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J

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J

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- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shape of large figures</div> <div>Changes shading of 1st figure</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>T</div> <div>U</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

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U













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- ☐

Difficulty: Intermediate (10)



Operator	Effect	Input	Process	Output
<div>D</div>	Changes size of large figures	<div></div>	<div>D</div>	<div></div>
<div>E</div>	Changes shading and shape of all figures	<div></div>	<div>E</div>	<div></div>

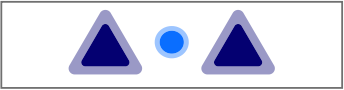
?

E

D

E





Difficulty: Hard (30)



Operator	Effect	Input	Process	Output
J	Duplicates light figures		J	
K	Changes size and shape of large light figures		K	
L	Changes size and shape of all figures		L M	
M	Changes 1st figure (see examples)		M L	

? L

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Deletes 4th figure		N	
O	Swaps 2nd and 1st figure		O	
P	Changes size and shape of 3rd figure		P	
Q	Changes shading of all figures		Q	

O

Q

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- ☐



Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Changes 1st figure (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>F</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Deletes large light triangles	<div><div><div></div><div></div><div></div></div></div>	<div><div>G</div></div>	<div><div><div></div><div></div></div></div>

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F

✓

Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
H	Changes shading and shape of 2nd figure			
I	(see examples)			
J	Changes size of all figures			
K	Swaps 2nd and 1st figure			

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I

K

J

- ☐

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- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div>F</div>	Changes shading and shape of all figures	<div><div></div><div></div></div>	<div>F</div>	<div><div></div><div></div></div>
<div>G</div>	Duplicates 2nd figure	<div><div></div><div></div></div>	<div>G</div>	<div><div></div><div></div><div></div></div>

?

F

G

F

✓



Operator	Effect	Input	Process	Output
S	Duplicates 2nd figure		S	
T	(see examples)		T	
U	Changes shading and shape of small figures		U	

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U

S

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
N	Changes 2nd figure (see examples)		N	
O	Swaps 3rd and 1st figure		O	
P	Changes size and shading of light circles		P Q	
Q	Changes size of 1st figure		Q P	

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QO

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- ☐
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- ☐



Operator	Effect	Input	Process	Output
M	Swaps figures (see examples)		M	
N	Swaps 3rd and 4th figure		N	
O	Swaps figures (see examples)		O	

?

O

M

N

- ☐
- ☐
- ☐
- ☐



Difficulty: Hard (41)



Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Changes 2nd figure (see examples)	<div></div>	<div>O</div>	<div></div>
	Changes shape of all figures	<div></div>	<div>P</div>	<div></div>
		<div></div>	<div>P</div>	<div></div>

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P

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Operator	Effect	Input	Process	Output
V	Duplicates small triangles		V	
W	Deletes large dark figures		W	
X	Changes shading and shape of all figures		X Y	
Y	Deletes small figures		Y X	



Y

X

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Operator	Effect	Input	Process	Output
<div>G</div>	Changes large circles (see examples)		<div>G</div>	
<div>H</div>	Changes shape of all figures		<div>H</div>	
<div>I</div>	Changes size and shading of all figures		<div>I</div>	
<div>J</div>	Changes size and shading of 2nd figure		<div>J</div>	

J

H

I

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- ☐



Operator	Effect	Input	Process	Output
<div>G</div>	Changes 1st figure (see examples)		<div>G</div>	
<div>H</div>	Duplicates circles		<div>H</div>	
<div>I</div>	Duplicates 2nd figure		<div>I</div>	
<div>J</div>	Deletes small figures		<div>J</div>	

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I

J

H

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
F	Duplicates circles		F	
G	Changes size of large dark figures		G	
H	Duplicates 2nd figure		H	
			H G	

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F

H

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Operator	Effect	Input	Process	Output
H	Changes size of dark figures		H	
I	Changes size of small dark figures		I	
J	Duplicates 1st figure		J	
K	Changes size and shape of small circles		K	

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I

K

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>D</div>	Changes size and shape of all figures		<div>D</div>	
<div>E</div>	Changes shading and shape of light figures		<div>E</div>	
<div>F</div>	Swaps figures (see examples)		<div>F</div>	
			<div>F</div> <div>E</div>	

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F

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Operator	Effect	Input	Process	Output
F	Changes size and shape of 1st figure		F	
G	Changes 4th figure (see examples)		G	
H	Duplicates small dark figures		H	
I	Changes 3rd figure (see examples)		I	

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- ☐



Operator	Effect	Input	Process	Output
I	Changes shape of 1st figure		I	
J	Deletes 1st figure		J	
K	Changes 1st figure (see examples)		K	

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Operator	Effect	Input	Process	Output
M	Deletes dark circles		M	
N	Changes shading and shape of 2nd figure		N	
O	Changes size of small circles		O	
			ON	

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Operator	Effect	Input	Process	Output
F	Changes size and shape of small figures		F	
G	Changes size of 1st figure		G	
H	Deletes light circles		H	

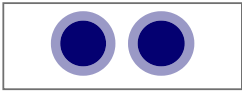


G


F

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- ☐





Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	(see examples) Changes size and shading of all figures	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>	<div>I</div> <div>J</div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>

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I

J

I

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Difficulty: Very Hard (56)



Operator	Effect	Input	Process	Output
C	Changes size of 1st figure		C	
D	Duplicates 2nd figure		D	
E	Changes shape of all figures		E F	
F	Changes size of dark figures		F E	

F C F ?

- ☐
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- ☐
- ☐



Operator	Effect	Input	Process	Output
R	Changes light figures (see examples)		R	
S	Changes 4th figure (see examples)		S	
T	Changes size and shape of 1st figure		T	
			T	

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R

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rator	Effect	Input	Process	Output
L	Changes size and shading of all figures		L	
M	Duplicates large triangles		M	
N	Duplicates 1st figure		N	
			N	

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M

N

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Operator	Effect	Input	Process	Output
<div>H</div>	Changes size of 2nd figure		<div>H</div>	
<div>I</div>	Deletes 2nd figure		<div>I</div>	
<div>J</div>	Changes size and shape of all figures		<div>J</div>	
			<div>I</div>	

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J

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Operator	Effect	Input	Process	Output
R	Changes shape of 2nd figure		R	
S	Changes 2nd figure (see examples)		S	
T	Changes shading and shape of light triangles		T	

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S

T

S

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Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Changes size and shading of 1st figure</div> <div>Duplicates circles</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>E</div> <div>F</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

E

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Difficulty: Very Easy (8)



Operator	Effect	Input	Process	Output
<div>L</div>	Duplicates dark figures	<div><div></div><div></div><div></div></div>	<div>L</div>	<div><div></div><div></div><div></div><div></div></div>
<div>M</div>	Duplicates 3rd figure	<div><div></div><div></div><div></div></div>	<div>M</div>	<div><div></div><div></div><div></div><div></div></div>

L

M

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Operator	Effect	Input	Process	Output
B	Changes large triangles (see examples)		B	
C	Changes size of all figures		C	
D	Changes light triangles (see examples)			
E	Swaps figures (see examples)			

?

E

D



Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div><div>C</div></div>	Duplicates 4th figure		<div>A</div>	
	Changes dark triangles (see examples)		<div>B</div>	
	Duplicates 1st figure		<div>C</div>	
			<div>C</div>	

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A

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Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Swaps 2nd and 1st figure		<div>N</div>	
	Changes shading and shape of 1st figure		<div>O</div>	
			<div>O</div>	

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N

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Operator	Effect	Input	Process	Output
F	Swaps 3rd and 1st figure		F	
G	Changes dark circles (see examples)		G	
H	Deletes 2nd figure	Nothing		Nothing
I	Deletes triangles		I H	

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F

G

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- ☐
- ☐





Operator	Effect	Input	Process	Output
N	Changes size and shading of large dark figures		N	
O	Changes size of all figures		O	
P	Changes 1st figure (see examples)		P	
			P	

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P

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Operator	Effect	Input	Process	Output
P	Changes shading and shape of all figures		P	
Q	Deletes 2nd figure		Q	
R	Changes 2nd figure (see examples)		R	
S	Deletes small light figures		S	

S P ?

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- ☐
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Operator	Effect	Input	Process	Output
H	Changes shading of light figures			
I	Changes small dark circles (see examples)			
J	Changes size and shading of large triangles			
K	Duplicates 2nd figure			

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- ☐



Operator	Effect	Input	Process	Output
J	Deletes 3rd figure		J	
K	Deletes 2nd figure		K	
L	Duplicates 2nd figure		L	
M	Changes size and shape of 1st figure		M	

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	<div>Duplicates 1st figure</div> <div>Duplicates light figures</div>	<div></div> <div></div>	<div>F</div> <div>G</div>	<div></div> <div></div>

F ?

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Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	(see examples)		<div>V</div>	
	Duplicates dark circles		<div>W</div>	
			<div>W</div>	
			<div>V</div>	

V

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- Difficulty: Intermediate (11)



Operator	Effect	Input	Process	Output
<div>K</div>	Duplicates large light triangles		<div>K</div>	
<div>L</div>	Changes dark figures (see examples)		<div>L</div>	
			<div>K</div>	
			<div>K</div>	

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L

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Operator	Effect	Input	Process	Output
<div>G</div>	Duplicates 1st figure	<div><div>△</div><div>●</div></div>	<div>G</div>	<div><div>△</div><div>△</div><div>●</div></div>
<div>H</div>	Changes size and shape of circles	<div><div>●</div><div>△</div></div>	<div>H</div>	<div><div>△</div><div>△</div></div>
<div>I</div>	Changes size and shape of all figures	<div><div>△</div><div>△</div></div>	<div>I</div>	<div><div>○</div><div>○</div></div>

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	(see examples)		<div>K</div>	
	Deletes 2nd figure		<div>L</div>	
			<div>L</div>	
			<div>K</div>	

L

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Operator	Effect	Input	Process	Output
B	Changes shading and shape of 1st figure		B	
C	Changes 4th figure (see examples)		C	
D	Changes large triangles (see examples)		D	
E	Changes size and shading of 1st figure		E	

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B



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>Changes size and shading of all figures</div> <div>Changes size and shape of 1st figure</div>	<div></div> <div></div>	<div>K</div> <div>L</div>	<div></div> <div></div>

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K

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Operator	Effect	Input	Process	Output
H	Deletes 3rd figure		H	
I	Changes 1st figure (see examples)		I	
J	Changes large circles (see examples)		J	
K	Changes shading and shape of triangles		K	

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J

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- ☐



Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Changes shape of 2nd figure		N	
	Changes 4th figure (see examples)		O	
			O	
			N	

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N

O

N

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- ☐





Operator	Effect	Input	Process	Output
C	Changes large light triangles (see examples)		C	
D	Duplicates 1st figure		D	
E	Changes shading and shape of 1st figure		E F	
F	Changes small circles (see examples)			

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C

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F

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Operator	Effect	Input	Process	Output
Q	Swaps figures (see examples)		Q	
R	Changes size and shape of all figures		R	
S	Duplicates circles		S T	
T	Changes size of all figures		T S	

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T

Q

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Difficulty: Intermediate (20)



Operator	Effect	Input	Process	Output
Q	Changes circles (see examples)		Q	
R	Changes small triangles (see examples)		R	
S	Changes size of all figures		S	
			Q	

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S

R

Q

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Operator	Effect	Input	Process	Output
P	Changes shape of all figures		P	
Q	Changes size of 2nd figure		Q	
R	Changes shading and shape of all figures		R	
			RQ	

? Q R

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- ☐
- ☐





Operator	Effect	Input	Process	Output
P	Duplicates large triangles		P	
Q	Changes size and shape of all figures		Q	
R	Changes 3rd figure (see examples)		R	
S	Duplicates 3rd figure		S	

R

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Operator	Effect	Input	Process	Output
R	Changes size of all figures		R	
S	Duplicates small dark triangles		S	
T	Changes shape of 2nd figure		T	

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R

T



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Operator	Effect	Input	Process	Output
I	Changes size of all figures		I	
J	Duplicates 2nd figure		J	
K	Deletes large dark figures		K	Nothing

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J

I

J

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Operator	Effect	Input	Process	Output
V	Deletes 2nd figure		V	
W	Changes shape of 2nd figure		W	
X	Changes shading of all figures		X	
Y	Duplicates 1st figure		Y	

V**Y****V** ?

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Operator	Effect	Input	Process	Output
L	Deletes 1st figure		L	
M	Swaps 3rd and 1st figure		M	
N	Changes shape of all figures		N	
			N M	

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Operator	Effect	Input	Process	Output
<div><div>G</div></div>	(see examples)		<div><div>G</div></div>	
<div><div>H</div></div>	Changes small figures (see examples)		<div><div>H</div></div>	
<div><div>I</div></div>	Deletes 2nd figure		<div><div>I</div></div>	
<div><div>J</div></div>	Changes size of 3rd figure		<div><div>J</div></div>	

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J

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	Swaps figures (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>U</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Changes shading of all figures	<div><div><div></div><div></div></div></div>	<div>V</div>	<div><div><div></div><div></div></div></div>

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V

U

V

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Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div><div>H</div></div>	Changes 2nd figure (see examples)		<div>F</div>	
	Swaps 1st and 2nd figure		<div>G</div>	
	Changes shape of 3rd figure		<div>H</div>	

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F

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Operator	Effect	Input	Process	Output
F	Deletes 3rd figure		F	
G	Swaps figures (see examples)		G	
H	Changes shading of dark triangles	Nothing		Nothing
I	Changes 2nd figure (see examples)		I H	

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I

H

I

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Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Deletes 3rd figure</div> <div>Changes 1st figure (see examples)</div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div>E</div> <div>F</div>	<div><div></div><div></div></div> <div><div></div><div></div></div>

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Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
L	Duplicates large figures		L	
M	Changes size and shading of 2nd figure		M	
N	Deletes dark circles		N	

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L

M

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Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	<div>Changes shading and shape of all figures</div> <div>Duplicates large light figures</div>	<div><div><div><div></div><div></div><div></div><div></div></div></div></div> <div><div><div><div></div><div></div><div></div><div></div></div></div></div>	<div><div>F</div><div>G</div></div>	<div><div><div><div></div><div></div><div></div><div></div></div></div></div> <div><div><div><div></div><div></div><div></div><div></div></div></div></div>

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F

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div><div>U</div></div>	(see examples)		<div>S</div>	
	Duplicates 3rd figure		<div>T</div>	
	Changes size and shading of 1st figure		<div>U</div>	
			<div>T</div>	

U

T

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Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div><div>F</div></div>	Deletes 1st figure		<div>D</div>	
	Changes shading and shape of all figures		<div>E</div>	
	Changes size of large light triangles		<div>F</div>	

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E

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Operator	Effect	Input	Process	Output
U	Changes 4th figure (see examples)			
V	Deletes 4th figure			
W	Changes shading and shape of 1st figure			

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V

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Operator	Effect	Input	Process	Output
<div>H</div>	Duplicates 1st figure		<div>H</div>	
<div>I</div>	Changes size and shading of 3rd figure		<div>I</div>	
<div>J</div>	Changes small circles (see examples)		<div>J</div>	
			<div>J</div> <div>I</div>	

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J

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Operator	Effect	Input	Process	Output
A	Changes size and shading of 2nd figure		A	
B	(see examples)		B	
C	Changes 2nd figure (see examples)		C	

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A

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Operator	Effect	Input	Process	Output
<div>N</div>	Changes small figures (see examples)		<div>N</div>	
<div>O</div>	Duplicates dark circles		<div>O</div>	
			<div>N</div>	



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Operator	Effect	Input	Process	Output
R	Changes 2nd figure (see examples)		R	
S	Swaps 2nd and 3rd figure		S	
T	Duplicates 1st figure		T	




R ?

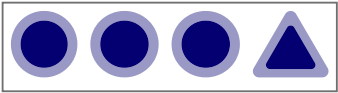
- ☐


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- ☐


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Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div></div>	Changes shape of large figures		D	
	Duplicates large light triangles		E	
			D	
			E	

D

E

D

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- ☐



Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	Changes shading and shape of all figures		A	
	Changes shading and shape of 1st figure		B	
			A	

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B

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Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Changes size and shading of large light figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>G</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>
<div><div>H</div></div>	Swaps 1st and 3rd figure	<div><div><div></div><div></div><div></div></div></div>	<div><div>H</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>I</div></div>	Changes large light figures (see examples)	<div><div><div></div><div></div><div></div></div></div>	<div><div>I</div></div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>I</div><div>H</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>

H

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Operator	Effect	Input	Process	Output
N	Changes size and shading of small circles		N	
O	Deletes light figures		O	
P	Duplicates small dark figures		P	

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O

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Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Changes size of 3rd figure	<div><div></div><div></div><div></div></div>	L	<div><div></div><div></div><div></div></div>
	Deletes 3rd figure	<div><div></div><div></div><div></div></div>	M	<div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	L	<div><div></div><div></div><div></div></div>

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Operator	Effect	Input	Process	Output
J	Deletes dark circles		J	
K	Duplicates 2nd figure		K	
L	Duplicates triangles		L	
			J	

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Operator	Effect	Input	Process	Output
H	Deletes large circles		H	
I	Changes size and shape of 1st figure		I	
J	Changes shading and shape of 1st figure		J	
K	Deletes large dark figures		K	

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I

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Operator	Effect	Input	Process	Output
Q	Changes shading and shape of large circles		Q	
R	Changes size of 1st figure		R	
S	Changes 2nd figure (see examples)		S	
			S R	

Q S Q ?

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Operator	Effect	Input	Process	Output
V	Deletes 3rd figure		V	
W	Changes size and shape of 4th figure		W	
X	Changes shading and shape of 1st figure	Nothing		Nothing
Y	Changes size and shading of triangles		Y X	

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Operator	Effect	Input	Process	Output
R	Changes size of large figures		R	
S	Deletes 2nd figure		S	
T	Changes 3rd figure (see examples)		T U	
U	Changes shading and shape of all figures		U T	

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Operator	Effect	Input	Process	Output
M	Changes small triangles (see examples)		M	
N	Swaps figures (see examples)		N	
O	Duplicates 2nd figure		O	

N ?

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Operator	Effect	Input	Process	Output
S	Changes size of circles			
T	Changes 1st figure (see examples)			
U	Swaps figures (see examples)			
V	Changes 1st figure (see examples)			

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Operator	Effect	Input	Process	Output
M	Changes size of all figures		M	
N	(see examples)		N	
O	Changes 3rd figure (see examples)		O	
P	Changes shading of all figures		P	

P

M

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Operator	Effect	Input	Process	Output
<div>C</div>	Deletes 3rd figure		<div>C</div>	
<div>D</div>	Changes size and shading of 2nd figure		<div>D</div>	

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C

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Difficulty: Intermediate (20)



Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Changes 2nd figure (see examples)		<div>H</div>	
	Changes size of large circles		<div>I</div>	
			<div>I</div>	
			<div>I</div>	

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I

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Operator	Effect	Input	Process	Output
<div>L</div>	Changes shape of 2nd figure		<div>L</div>	
<div>M</div>	Changes light triangles (see examples)		<div>M</div>	

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Operator	Effect	Input	Process	Output
E	Deletes 2nd figure		E	
F	Changes shape of 1st figure		F	
G	Changes size of 3rd figure		G	

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Operator	Effect	Input	Process	Output
H	Changes 1st figure (see examples)			
I	Changes triangles (see examples)			
J	Changes shading and shape of 2nd figure			
K	Changes shape of all figures			

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Operator	Effect	Input	Process	Output
C	Changes 3rd figure (see examples)		C	
D	(see examples)		D	
E	Duplicates 2nd figure		E F	
F	Changes shading of all figures		F E	

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D

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Operator	Effect	Input	Process	Output
B	Deletes 1st figure		B	
C	Changes size and shading of 2nd figure		C	
D	Changes large figures (see examples)		D	
			D C	

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C

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Operator	Effect	Input	Process	Output
T	Duplicates 1st figure		T	
U	Deletes small light figures		U	
V	Swaps 1st and 2nd figure		V	
W	Swaps 4th and 2nd figure		W	

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Duplicates 3rd figure	<div><div>▲</div><div>▲</div><div>▲</div><div>●</div></div>	<div><div>K</div><div>L</div></div>	<div><div>▲</div><div>▲</div><div>▲</div><div>▲</div><div>●</div></div>
	Deletes 3rd figure	<div><div>▲</div><div>▲</div><div>●</div></div>	<div><div>L</div></div>	<div><div>▲</div><div>▲</div></div>

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Operator	Effect	Input	Process	Output
N	Duplicates 1st figure		N	
O	Deletes 1st figure		O	
P	Swaps 1st and 2nd figure		P	
			P	

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Operator	Effect	Input	Process	Output
<div>C</div>	Deletes 3rd figure		<div>C</div>	
<div>D</div>	Changes size of 1st figure		<div>D</div>	
			<div>C</div>	
			<div>D</div>	

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Operator	Effect	Input	Process	Output
K	Changes size and shading of 1st figure		K	
L	Changes size and shape of 3rd figure		L	
M	Changes shading and shape of 2nd figure		M	

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M

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K

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Duplicates 4th figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>K</div><div>L</div></div>	<div><div><div><div></div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div></div></div></div></div>

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Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Duplicates small figures	<div><div>△</div><div>△</div><div>△</div></div>	<div>I</div>	<div><div>△</div><div>△</div><div>△</div><div>△</div><div>△</div></div>
	Deletes large triangles	<div><div>△</div><div>△</div></div>	<div>J</div>	<div><div>△</div></div>
		<div><div>●</div><div>△</div><div>△</div></div>	<div>J</div>	<div><div>●</div><div>△</div></div>

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Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	Duplicates small circles		<div>C</div>	
	Changes 2nd figure (see examples)		<div>D</div>	
			<div>C</div>	
			<div>C</div>	

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Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Swaps figures (see examples)		<div>I</div>	
	Duplicates 2nd figure		<div>J</div>	
			<div>I</div>	
			<div>J</div>	

J

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Operator	Effect	Input	Process	Output
A	Changes large figures (see examples)		A	
			B	
B	Swaps 1st and 3rd figure		A	
			A	

B

A

B

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Operator	Effect	Input	Process	Output
A	Duplicates 2nd figure		A	
B	Changes size and shading of 2nd figure		B	
C	Changes size and shape of dark figures		C D	
D	Duplicates 1st figure		D C	

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B

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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Changes shading of light figures		<div>O</div>	
	Changes shading of small figures		<div>P</div>	
			<div>P</div>	
			<div>O</div>	

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	(see examples) Swaps 3rd and 1st figure	<div><div><div></div><div></div><div></div></div></div>	<div><div>S</div><div>T</div></div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>		<div><div><div></div><div></div><div></div></div></div>

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Operator	Effect	Input	Process	Output
K	Duplicates small circles		K	
L	Duplicates 1st figure		L	
M	Changes shading of 3rd figure		M	
			M L	

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Operator	Effect	Input	Process	Output
A	Changes size and shape of 1st figure		A	
B	(see examples)		B	
C	Swaps 2nd and 3rd figure		C	
			C B	

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Operator	Effect	Input	Process	Output
U	Deletes small figures		U	
V	(see examples)		V	
W	Duplicates 3rd figure	Nothing		Nothing
X	Deletes 1st figure		X W	

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Operator	Effect	Input	Process	Output
N	Duplicates light figures		N	
O	Changes size and shape of all figures		O	
P	Changes size and shading of all figures		P	
			P O	

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Operator	Effect	Input	Process	Output
<div>V</div>	Changes shading and shape of small dark circles	<div><div></div><div></div><div></div></div>	<div>V</div>	<div><div></div><div></div><div></div></div>
<div>W</div>	Changes large figures (see examples)	<div><div></div><div></div><div></div></div>	<div>W</div>	<div><div></div><div></div><div></div></div>

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V

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Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	<div>Changes 1st figure (see examples)</div> <div>Changes shape of all figures</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>	<div>V</div> <div>W</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>

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Operator	Effect	Input	Process	Output
H	Changes shading and shape of 2nd figure			
I	Changes 1st figure (see examples)			
J	Changes triangles (see examples)			
K	Changes 3rd figure (see examples)			

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K

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Operator	Effect	Input	Process	Output
R	Changes shading and shape of 1st figure		R	
S	Changes large light triangles (see examples)		S	
T	Deletes 1st figure		T	
U	Duplicates 2nd figure		U	

S R ?

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Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Swaps 1st and 2nd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>H</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Changes shading and shape of large triangles	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>I</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

H

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Difficulty: Hard (30)



Operator	Effect	Input	Process	Output
V	Changes size of all figures		V	
W	Changes size and shading of all figures		W	
X	Changes shading of 1st figure			
Y	Deletes small triangles			

V ?

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Operator	Effect	Input	Process	Output
M	Changes small figures (see examples)		M	
N	Deletes 3rd figure		N	
O	Changes shading of all figures		O	

O **N** **O** ?

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Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Changes size and shading of 1st figure	<div><div><div></div><div></div></div></div>	<div><div>G</div></div>	<div><div><div></div><div></div></div></div>
<div><div>H</div></div>	Changes shading and shape of all figures	<div><div><div></div><div></div><div></div></div></div>	<div><div>H</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>I</div></div>	Deletes 1st figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>I</div></div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div><div>I</div><div>H</div></div>	<div><div><div></div></div></div>

I

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Operator	Effect	Input	Process	Output
A	(see examples)		A	
B	Swaps 1st and 2nd figure		B	
C	Changes size of all figures		C	
			C B	

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Operator	Effect	Input	Process	Output
C	Deletes 1st figure		C	
D	Changes shading of light figures		D	
E	Duplicates 2nd figure		E	
F	Changes 3rd figure (see examples)		F	

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Operator	Effect	Input	Process	Output
A	Deletes triangles		A	
B	Duplicates dark figures		B	
C	Duplicates dark circles		C	
D	Duplicates small figures		D	

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D

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Changes 1st figure (see examples)</div> <div>Changes shading of all figures</div>	<div></div> <div></div>	<div><div>G</div><div>H</div></div>	<div></div> <div></div>

G

H

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- ☐



Operator	Effect	Input	Process	Output
N	Changes size and shape of all figures		N	
O	Deletes small light figures		O	
P	Changes size and shape of 1st figure		P	
			PO	

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	Deletes 4th figure		<div>G</div>	
	Swaps figures (see examples)		<div>H</div>	
	Changes 4th figure (see examples)		<div>I</div>	
			<div>I</div> <div>H</div>	

H

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Operator	Effect	Input	Process	Output
E	Changes 2nd figure (see examples)		E	
F	Changes 1st figure (see examples)		F	
G	Swaps figures (see examples)		G	
			F	

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div><div>U</div></div>	(see examples)		<div>S</div>	
	Changes dark triangles (see examples)		<div>T</div>	
	Changes size of 1st figure		<div>U</div>	
			<div>U</div>	

U

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Operator	Effect	Input	Process	Output
U	Changes 1st figure (see examples)		U	
V	Duplicates light triangles		V	
W	Changes 2nd figure (see examples)		W	

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Operator	Effect	Input	Process	Output
H	Deletes large figures		H	
I	Swaps figures (see examples)		I	
J	Changes shape of all figures		J	
			J I	

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Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	<div>Changes large dark figures (see examples)</div> <div>Changes shading of 1st figure</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>I</div> <div>J</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

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Difficulty: Hard (32)



Operator	Effect	Input	Process	Output
E	(see examples)		E	
F	Swaps 2nd and 3rd figure		F	
G	Duplicates large triangles		G	
H	Duplicates 1st figure		H	

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Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	Duplicates 1st figure		C	
	Changes shape of all figures		D	
			C	
			C	

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D

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	(see examples)		U	
	Changes 2nd figure (see examples)		V	
			U	
			V	

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V

U

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Operator	Effect	Input	Process	Output
U	Deletes 4th figure		U	
V	Changes shading of all figures		V	
W	Deletes small light figures		W	

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Operator	Effect	Input	Process	Output
U	Changes large figures (see examples)			
V	Changes dark circles (see examples)			
W	Duplicates light circles			

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Operator	Effect	Input	Process	Output
C	Changes 1st figure (see examples)		C	
D	(see examples)		D	
E	Deletes large figures		E	
F	Changes size and shape of 3rd figure		F	

D

C

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	Changes small figures (see examples)		<div><div>U</div><div>V</div></div>	
	Deletes large figures		<div><div>U</div><div>V</div></div>	

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Operator	Effect	Input	Process	Output
T	Changes size and shape of all figures			
U	Changes shading and shape of all figures			
V	Swaps figures (see examples)			

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Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	Duplicates circles		<div>R</div>	
	Changes size of 2nd figure		<div>S</div>	
			<div>S</div>	

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R

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R

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Operator	Effect	Input	Process	Output
<div>L</div>	Changes shading and shape of 1st figure		<div>L</div>	
<div>M</div>	Duplicates large figures		<div>M</div>	

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Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	Duplicates 1st figure		C	
	Changes shape of all figures		D	
			D	
			C	

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C

D

C

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Operator	Effect	Input	Process	Output
V	Deletes 2nd figure		V	
W	Changes size and shape of all figures		W	
X	Changes 2nd figure (see examples)		X	
Y	Swaps figures (see examples)		Y	

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Y

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- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Deletes 2nd figure</div> <div>Duplicates 1st figure</div>	<div></div> <div></div>	<div>T</div> <div>U</div>	<div></div> <div></div>

U ?

- ☐
- ☐
- ☒
- ☐



erator

Effect

Input

Process

Output

J

Swaps figures (see examples)



J



K

Duplicates large dark figures



K



L

Deletes 1st figure



L M



M

Duplicates large light triangles



M L



M

?

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Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
J	Changes 1st figure (see examples)		J	
K	Changes shading and shape of all figures		K	
L	Changes shading of 1st figure		L	
			L K	

? K

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	Swaps 2nd and 1st figure		M	
	Changes size of large triangles		N	
			M	
			M	

M

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
F	Duplicates large circles		F	
G	Changes size of all figures		G	
H	Swaps figures (see examples)		H	
			H	

HG?

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Operator	Effect	Input	Process	Output
T	Deletes small dark figures		T	
U	Swaps figures (see examples)		U	
V	Changes shading and shape of dark triangles		V	
W	Swaps 4th and 2nd figure		W	

U V W ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Changes shape of large figures		<div>G</div>	
<div><div>H</div></div>	Changes 1st figure (see examples)		<div>H</div>	
<div><div>I</div></div>	Changes shading of 2nd figure		<div>I</div>	
			<div>I H</div>	

G

 ?

- ☐

✓
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>Changes 3rd figure (see examples)</div> <div>Changes shading and shape of all figures</div>	<div></div> <div></div>	<div>K</div> <div>L</div>	<div></div> <div></div>

?

K

L

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>F</div>	Duplicates 1st figure		<div>F</div>	
<div>G</div>	Duplicates large light figures		<div>G</div>	
<div>H</div>	Changes 2nd figure (see examples)		<div>H</div>	

F

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Duplicates 3rd figure	<div><div><div></div><div></div><div></div></div></div>	<div>G</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Changes size of all figures	<div><div><div></div><div></div></div></div>	<div>H</div>	<div><div><div></div><div></div></div></div>

?

H

G

- ☐
- ☐

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Operator	Effect	Input	Process	Output
T	(see examples)		T	
U	Changes circles (see examples)		U	
V	Changes size of all figures		V	
W	Changes shading of all figures		W	

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VU

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- ☐
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Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	<div>Changes shading of all figures</div> <div>Changes large figures (see examples)</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>P</div> <div>Q</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

?

Q

P

- ☐
- ☐

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	Duplicates 1st figure Changes size and shading of all figures	<div><div></div><div></div></div>	<div>U</div> <div>V</div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div></div>

VU V ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
U	Changes shape of 2nd figure		U	
V	Changes shape of 1st figure		V	
W	Changes 1st figure (see examples)		W	
X	Changes size of small dark figures		X	

? U

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Operator	Effect	Input	Process	Output
C	Duplicates 1st figure		C	
D	Duplicates large circles		D	
E	Changes size of 2nd figure		E F	
F	Changes shading and shape of 1st figure		F E	

?

C

E

F

- ✓
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Operator	Effect	Input	Process	Output
J	Changes size and shape of all figures		J	
K	Duplicates 4th figure		K	
L	Changes 1st figure (see examples)		L	
M	Changes 4th figure (see examples)		M	

?

L

M

J

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
K	Duplicates 1st figure		K	
L	Duplicates small light circles		L	
M	Changes size and shading of all figures		M N	
N	Duplicates large figures		N M	

L N ?

- ☐
- ☐

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- ☐
- ☐



Operator	Effect
<div><div>S</div><div>T</div></div>	Duplicates 2nd figure
	Changes 2nd figure (see examples)

Input	Process	Output
<div><div>▲▲</div><div>▲▲</div></div>	<div>S</div>	<div>▲▲▲</div>
<div><div>▲▲</div><div>▲▲</div></div>	<div>T</div>	<div>▲▲</div>

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T

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- ☐

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Operator	Effect
I	Changes shading of 2nd figure
J	Changes size of 2nd figure
K	Duplicates 1st figure

Input	Process	Output
	I	
	J	
	K	
	K J	

? J I

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>L</div> <div>M</div>	Changes shape of 1st figure Deletes 2nd figure	<div></div> <div></div>	<div>L</div> <div>M</div>	<div></div> <div></div>

? L M

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
J	Changes shading of large dark figures		J	
K	Changes shading of 2nd figure		K	
L	Changes shape of 2nd figure	Nothing		Nothing
M	Changes size and shape of 3rd figure		M L	

?

L

K

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
F	Duplicates circles			
G	Swaps figures (see examples)			
H	Deletes 2nd figure			
I	Duplicates 2nd figure			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes shading and shape of 1st figure		N	
O	Duplicates 1st figure		O	
P	Duplicates 4th figure		P	

?

P

✓



Operator	Effect	Input	Process	Output
U	Changes small dark circles (see examples)		U	
V	Duplicates 2nd figure		V	
W	Duplicates 1st figure		W	
			W V	

?

W

- ☐

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>F</div>	Duplicates 4th figure	<div></div>	<div>F</div>	<div></div>
<div>G</div>	Swaps 1st and 2nd figure	<div></div>	<div>G</div>	<div></div>

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F

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- ☐



Operator	Effect	Input	Process	Output
T	Changes 3rd figure (see examples)			
U	Deletes 4th figure			
V	Duplicates circles			
W	Swaps figures (see examples)			

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Operator	Effect	Input	Process	Output
S	Deletes 1st figure		S	
T	Swaps figures (see examples)		T	
U	Duplicates light figures		U	
V	Deletes 3rd figure		V	

?

U

V

- ☐
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- ☐

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- ☒

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Operator	Effect	Input	Process	Output
S	Changes small triangles (see examples)		S	
T	Swaps 1st and 2nd figure		T	
U	Changes 2nd figure (see examples)		U	
V	Duplicates light figures		V	

?

T

S

U



Operator	Effect	Input	Process	Output
A	Swaps 4th and 2nd figure		A	
B	Changes dark figures (see examples)		B	
C	Changes shading of all figures		C	
D	Changes shading and shape of 3rd figure		D	

A

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Operator	Effect
N	Changes size of all figures
O	(see examples)
P	Changes shading and shape of 1st figure

Input	Process	Output
	N	
	O	
	P	
	O	

?

P

- ☐
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Operator	Effect
<div>B</div>	Changes shape of 3rd figure
<div>C</div>	Deletes light figures

Input	Process	Output
	<div>B</div>	
	<div>C</div>	
	<div>B</div>	

?

B

C

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Difficulty: Intermediate (10)



Operator	Effect	Input	Process	Output
N	Duplicates 2nd figure		N	
O	Changes size and shape of dark figures		O	
P	Duplicates circles		P	
Q	Changes shading of all figures		Q	

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N

Q

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Operator	Effect	Input	Process	Output
C	Changes size and shading of 1st figure		C	
D	Changes shading and shape of 1st figure		D	
E	Duplicates dark figures		E	
			E D	

CDC?

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Difficulty: Hard (30)



Operator	Effect
F	Changes 2nd figure (see examples)
G	Duplicates 3rd figure

Input	Process	Output
	F	
	G	
	F	

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F

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Operator	Effect	Input	Process	Output
F	Changes shape of all figures		F	
G	Changes triangles (see examples)		G	
H	Swaps figures (see examples)		H	

?

G

F

G

- ☐

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- ☐
- ☐
- ☐



Operator	Effect
M	Swaps 1st and 2nd figure
N	Changes size and shading of 2nd figure
O	Duplicates 1st figure
P	Changes 1st figure (see examples)

Input	Process	Output
	M	
	N	
	O	
	P	

? P N

- ☐
- ☐
- ☐
- ☐

Difficulty: Intermediate (18)



Operator	Effect	Input	Process	Output
<div>P</div>	Deletes 3rd figure	<div><div>●</div><div>●</div><div>●</div><div>●</div></div>	<div>P</div>	<div><div>●</div><div>●</div><div>●</div></div>
<div>Q</div>	Duplicates 1st figure	<div><div>▲</div><div>●</div><div>▲</div><div>▲</div></div>	<div>Q</div>	<div><div>▲</div><div>▲</div><div>●</div><div>▲</div><div>▲</div></div>

?

Q

P

Q

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div><div>U</div></div>	Changes size and shading of all figures (see examples) Deletes 2nd figure	<div></div>	<div><div>S</div></div>	<div></div>
		<div></div>	<div><div>T</div></div>	<div></div>
		<div></div>	<div><div>U</div></div>	<div></div>

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T

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Operator	Effect
D	Deletes 3rd figure
E	Deletes 2nd figure
F	Changes size of 3rd figure

Input	Process	Output
	D	
	E	
	F	

? F

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	Duplicates light figures Changes size of large light figures	<div><div></div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div></div>

CDC?

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- ☐
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- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Duplicates 2nd figure	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>G</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>
	Swaps 2nd and 3rd figure	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>H</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

H

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Difficulty: Intermediate (10)



Operator	Effect
P	Changes 1st figure (see examples)
Q	Changes 2nd figure (see examples)

Input	Process	Output
	P	
	Q	
	P	
	Q	

?

P

Q

- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
T	Swaps figures (see examples)		T	
U	(see examples)		U	
V	Changes 2nd figure (see examples)		V W	
W	Changes size and shading of 1st figure		W V	

? W T

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Swaps 2nd and 1st figure		M	
N	Swaps 1st and 2nd figure		N	
O	Changes size and shading of all figures		O P	
P	Changes large figures (see examples)			

? M N O

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	<div>Deletes 1st figure</div> <div>Duplicates 3rd figure</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>M</div> <div>N</div>	<div><div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div></div></div>

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N



Operator	Effect	Input	Process	Output
E	Duplicates large light figures		E	
F	Duplicates 1st figure		F	
G	Swaps figures (see examples)		G	
			F	

?

G

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>C</div>	Changes shading and shape of 2nd figure		<div>C</div>	
<div>D</div>	Changes size and shape of 3rd figure		<div>D</div>	
<div>E</div>	Changes 1st figure (see examples)		<div>E</div>	
			<div>E D</div>	

E

D

E

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
F	Deletes 2nd figure		F	
G	Duplicates small circles		G	
H	Changes 4th figure (see examples)		H I	
I	Changes 1st figure (see examples)			

F G ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>J</div>	Changes size and shape of all figures	<div><div></div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div><div></div></div>
<div>K</div>	Swaps 1st and 2nd figure	<div><div></div><div></div><div></div></div>	<div>K</div>	<div><div></div><div></div><div></div></div>

J

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Operator	Effect
D	Changes size and shading of 1st figure
E	Deletes large dark figures
F	Changes large triangles (see examples)

Input	Process	Output
	D	
	E	
	F	
	F	

F

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Changes circles (see examples)</div> <div>Swaps figures (see examples)</div>	<div></div> <div></div> <div></div>	<div><div>G</div><div>H</div><div>G</div></div>	<div></div> <div></div> <div></div>

G

H

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Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	<div>Changes 2nd figure (see examples)</div> <div>Changes shading and shape of 1st figure</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>V</div> <div>W</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

?

W

V



Operator	Effect
R	Changes shading and shape of light circles
S	Changes size and shape of all figures
T	Duplicates small figures

Input	Process	Output
	R	
	S	
	T	

? R

- ☐
- ☐
- ☐
- ☐





Operator	Effect
<div><div>P</div><div>Q</div></div>	Changes 3rd figure (see examples)
	Changes shading and shape of large figures

Input	Process	Output
	<div>P</div>	
	<div>Q</div>	
	<div>P</div>	
	<div>P</div>	

?

Q

P

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect
J	Deletes 1st figure
K	Deletes small circles

Input	Process	Output
	J	
	K	

? J K J Nothing

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	<div>Changes 1st figure (see examples)</div> <div>Changes shape of large triangles</div>	<div></div> <div></div> <div></div> <div></div>	<div><div>R</div><div>S</div><div>S</div><div>S</div></div>	<div></div> <div></div> <div></div> <div></div>

?







S

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Deletes 1st figure		L	
M	Duplicates small figures		M	
N	Changes shading of 1st figure		N O	
O	Deletes 2nd figure		O N	

 M ?

- ☐ 
- ☐ 
- ☐ 
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Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	<div>Duplicates 1st figure</div> <div>Swaps figures (see examples)</div>	<div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div>	<div><div>Q</div><div>R</div></div>	<div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div>

?

R



Operator	Effect	Input	Process	Output
<div>C</div>	Changes dark triangles (see examples)		<div>C</div>	
<div>D</div>	Changes size and shading of all figures		<div>D</div>	
			<div>C</div>	
			<div>C</div>	

?

D

C

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✓
- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
E	Duplicates small figures		E	
F	Changes 2nd figure (see examples)		F	
G	Deletes large figures		G	
H	Swaps figures (see examples)		H	

? F

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>V</div>	Swaps 2nd and 1st figure	<div><div>●</div><div>▲</div></div>	<div>V</div>	<div><div>▲</div><div>●</div></div>
<div>W</div>	Changes large triangles (see examples)	<div><div>▲</div><div>▲</div><div>▲</div></div>	<div>W</div>	<div><div>●</div><div>▲</div><div>▲</div></div>
<div>X</div>	Changes size and shape of 2nd figure	<div><div>▲</div><div>▲</div></div>	<div>X</div>	<div><div>▲</div><div>●</div></div>
		<div><div>●</div><div>●</div></div>	<div>X</div> <div>W</div>	<div><div>●</div><div>●</div></div>

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W

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Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	<div>Changes dark circles (see examples)</div> <div>Changes size and shape of 1st figure</div>	<div></div> <div></div>	<div>U</div> <div>V</div>	<div></div> <div></div>

?

V

U

V

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
D	Changes size and shape of light triangles		D	
E	Changes 4th figure (see examples)		E	
F	Deletes large dark figures		F	
G	Deletes 1st figure		G	

G

D

?

- ☐
- ☐
- ☐
- ☐
-



Operator	Effect
M	Changes shading and shape of 1st figure
N	Changes shading and shape of all figures
O	Changes 2nd figure (see examples)

Input	Process	Output
	M	
	N	
	O	
	O N	

?

O

N

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Changes shading of all figures		M	
N	(see examples)		N	
O	Changes size and shading of all figures		O	
			ON	

? N O M

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- ☐
- ☐
- ☐



Operator	Effect
I	Duplicates 1st figure
J	Deletes 1st figure

Input	Process	Output
	I	
	J	
	J	

?

J

I

- ☐
- ☐
- ☐
- ☐



Operator	Effect
	Deletes small figures
	Changes size and shape of 2nd figure

Input	Process	Output

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
T	Duplicates large figures		T	
U	Swaps figures (see examples)		U	
V	Deletes 2nd figure		V	
W	Deletes 4th figure		W	

? U

- ☐
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- ☐
- ☐



Operator	Effect	Input	Process	Output
J	Duplicates 4th figure		J	
K	Changes size of all figures		K	

J K J ?

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Difficulty: Intermediate (24)



Operator	Effect	Input	Process	Output
<div>H</div>	(see examples)	<div><div></div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div><div></div></div>
<div>I</div>	Deletes 2nd figure	<div><div></div><div></div></div>	<div>I</div>	<div><div></div></div>
<div>J</div>	Changes shape of all figures	<div><div></div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div><div></div><div></div></div>

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J

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Operator	Effect	Input	Process	Output
A	Duplicates 2nd figure		A	
B	Duplicates 1st figure		B	
C	(see examples)		C	
D	Duplicates 3rd figure		D	

A D A ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>Q</div>	Duplicates dark figures		<div>Q</div>	
<div>R</div>	Duplicates large triangles		<div>R</div>	
			<div>Q</div>	
			<div>Q</div>	

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Q

R

Q

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- ☐
- ☐

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- ☒

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Operator	Effect	Input	Process	Output
S	Changes 3rd figure (see examples)			
T	Changes size and shape of 2nd figure			
U	Changes shape of all figures			
V	Changes size and shading of 1st figure			

- ☐
- ☐

✓
- ☐

🤖
- ☐



Operator	Effect
F	Deletes light triangles
G	Deletes 3rd figure
H	Changes size and shading of 1st figure

Input	Process	Output
	F	
	G	
	H	

? G H F

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
T	Duplicates dark figures		T	
U	Deletes 2nd figure		U	
V	Changes shape of all figures		V	
			V U	

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T

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Operator	Effect	Input	Process	Output
<div>B</div>	Changes shading and shape of 1st figure		<div>B</div>	
<div>C</div>	Changes shading and shape of all figures		<div>C</div>	
<div>D</div>	Changes shading of all figures		<div>D</div>	
			<div>D C</div>	

B

 ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect
D	Changes 2nd figure (see examples)
E	Deletes 2nd figure
F	Changes size of 4th figure
G	Changes shading and shape of all figures

Input	Process	Output
	D	
	E	

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E

- ☐
- ☐

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- ☐
- ☐

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Operator	Effect	Input	Process	Output
F	Deletes 1st figure		F	
G	Deletes 4th figure		G	
H	Duplicates large figures		H I	
I	Changes size of 2nd figure		I H	

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G H G

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Operator	Effect	Input	Process	Output
<div>O</div>	Changes size of all figures	<div></div>	<div>O</div>	<div></div>
<div>P</div>	Changes 2nd figure (see examples)	<div></div>	<div>P</div>	<div></div>
<div>Q</div>	Changes size and shading of dark triangles	<div></div>	<div>Q</div>	<div></div>
<div>R</div>	Deletes 1st figure	<div></div>	<div>R</div>	<div></div>

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R

O

Q

- ☐
- ☐
- ☐
- ☐



Operator	Effect
	Changes size and shape of 1st figure
	Swaps 2nd and 1st figure

Input	Process	Output

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
C	Changes circles (see examples)		C	
D	Swaps 3rd and 2nd figure		D	
E	Changes size and shape of all figures		E F	
F	Changes shading and shape of all figures		F E	

? F E F

- ☐
- ☐
- ☐
- ☒

Difficulty: Hard (30)



Operator	Effect	Input	Process	Output
V	Duplicates large circles		V	
W	Changes size of 3rd figure		W	
X	Deletes large light figures		X	
Y	Changes shape of all figures		Y	

? X

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>P</div>	Duplicates 2nd figure	<div><div></div><div></div><div></div></div>	<div>P</div>	<div><div></div><div></div><div></div><div></div></div>
<div>Q</div>	Changes size and shading of all figures	<div><div></div><div></div><div></div></div>	<div>Q</div>	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	<div>P</div>	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	<div>Q</div>	<div><div></div><div></div><div></div><div></div></div>

?

Q

P

Q

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Operator	Effect	Input	Process	Output
	Deletes circles			
	Changes 1st figure (see examples)			
	Changes light circles (see examples)			
	Duplicates 1st figure			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Deletes small figures		N	
O	Changes shading of 2nd figure		O	
P	Changes dark triangles (see examples)			
Q	Changes shading and shape of all figures			

?

P

O

Q

- ☐
- ☐

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- ☐
- ☐

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Operator	Effect	Input	Process	Output
E	Changes size of 2nd figure		E	
F	Swaps figures (see examples)		F	
G	Duplicates large dark figures		G H	
H	Changes shape of 2nd figure		H G	

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E H F

- ☐
- ☐

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- ☐
- ☐

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Difficulty: Hard (38)



Operator	Effect	Input	Process	Output
<div>T</div>	Changes small triangles (see examples)		<div>T</div>	
<div>U</div>	Changes shading of 2nd figure		<div>U</div>	
<div>V</div>	Deletes 2nd figure		<div>V</div>	
			<div>U</div>	

T

 ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect
<div><div>K</div><div>L</div></div>	Duplicates small triangles
	Deletes 1st figure

Input	Process	Output
<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>K</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>
<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

K

L

K

?

- ☐

✓
- ☐
- ☐

🚚
- ☐

Difficulty: Intermediate (18)



Operator	Effect	Input	Process	Output
	Changes 1st figure (see examples)			
	Duplicates 2nd figure			
	Changes shape of all figures			
	Changes 3rd figure (see examples)			

- ☐
- ☐
- ☐
- ☐



Operator	Effect
I	Deletes 2nd figure
J	Changes 2nd figure (see examples)
K	Swaps 2nd and 1st figure
L	Changes shading of all figures

Input	Process	Output
	I	
	J	
	K	
	L	

? J L K

- ☐
- ☐
- ☐
- ☐

Difficulty: Hard (34)



Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	<div>Changes size and shading of circles</div> <div>Deletes 1st figure</div>	<div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div>S</div><div>T</div></div>	<div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div></div>

T S T ?

- ☐

✓
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Swaps 2nd and 1st figure		A	
B	Changes size and shape of all figures		B	
C	Changes triangles (see examples)		C	

?

A

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
H	Deletes 2nd figure		H	
I	Changes shape of all figures		I	
J	(see examples)		J	
K	Swaps 2nd and 1st figure		K	

?

I

J

I

- ☐
- ☐
- ☐
- ☐





Operator	Effect
R	Deletes small figures
S	Duplicates 1st figure
T	Deletes 3rd figure
U	Changes shading of 4th figure

Input	Process	Output
	R	
	S	
	T	
	U	

?

U

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>V</div>	Swaps figures (see examples)	<div></div>	<div>V</div>	<div></div>
<div>W</div>	Changes 1st figure (see examples)	<div></div>	<div>W</div>	<div></div>
<div>X</div>	Changes 2nd figure (see examples)	<div></div>	<div>X</div>	<div></div>
		<div></div>	<div>X W</div>	<div></div>

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V

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Operator	Effect
B	Changes small circles (see examples)
C	Changes size and shading of all figures
D	Changes size of all figures
E	Duplicates 3rd figure

Input	Process	Output
	B	
	C	
Nothing		Nothing
	E D	

B

C

D

?

- ☐
- ☐
- ☐
- ☐
-



Operator

L

M

Effect

(see examples)

Changes size of 2nd figure

Input	Process	Output
	<div>L</div>	
	<div>M</div>	

M

L

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect
R	Swaps 1st and 2nd figure
S	Changes size and shape of large figures
T	Changes shading of all figures

Input	Process	Output
	R	
	S	
	T	

R T ?

- ☐
- ☐

✓
- ☐

🤖
- ☐



Operator	Effect	Input	Process	Output
V	Changes shading and shape of all figures		V	
W	Swaps 3rd and 4th figure		W	
X	Swaps 3rd and 2nd figure		X	
Y	Changes size and shading of 2nd figure		Y	

? Y

- ☐
- ☐
- ☐

✓ 🏆
- ☐



Operator	Effect	Input	Process	Output
T	Deletes 2nd figure		T	
U	Changes shading and shape of 1st figure		U	
V	Duplicates 3rd figure		V W	
W	Changes size of 2nd figure		W V	

U W T ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div></div>	Duplicates 2nd figure	<div></div>	<div><div>K</div></div>	<div></div>
<div><div>L</div></div>	Changes shading and shape of circles	<div></div>	<div><div>L</div></div>	<div></div>
<div><div>M</div></div>	Changes 3rd figure (see examples)	<div></div>	<div><div>M</div></div>	<div></div>
		<div></div>	<div><div>K</div></div>	<div></div>

?

L

K

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
A	Changes shading of small triangles		A	
B	Changes size and shading of all figures		B	
C	Duplicates light figures		C	
			C B	

?

A

- ☐
- ☐
- ☐

✓🏆
- ☐



Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div><div>F</div></div>	Changes size and shape of all figures (see examples) Duplicates 1st figure	<div><div><div></div><div></div></div></div>	<div>D</div>	<div><div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>E</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>F</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>E</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

?

F

E



Operator	Effect	Input	Process	Output
S	Duplicates 3rd figure		S	
T	Changes size and shading of all figures		T	
U	Swaps figures (see examples)		U V	
V	Changes shading of 1st figure		V U	

T S ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
R	Duplicates 2nd figure		R	
S	Changes 1st figure (see examples)		S	
T	Changes size and shading of all figures		T	
U	Swaps figures (see examples)		U	

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S

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
Q	Changes 2nd figure (see examples)		Q	
R	Changes size and shading of all figures		R	
S	Changes 1st figure (see examples)		S	

?

R

S

- ☐
- ☐
- ☐
- ☐



Operator	Effect
U	Deletes small light figures
V	Changes shading and shape of all figures

Input	Process	Output
	U	
	V	
	V	
	V	

- ☐
- ☐
- ☐
- ☐



Operator	Effect
<div>T</div>	Changes shading of all figures
<div>U</div>	Deletes 2nd figure

Input	Process	Output
<div></div>	<div>T</div>	<div></div>
<div></div>	<div>U</div>	<div></div>
<div></div>	<div>T</div>	<div></div>
<div></div>	<div>T</div>	<div></div>

T

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- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>H</div>	Changes size and shading of all figures	<div><div></div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div><div></div></div>
<div>I</div>	Duplicates 2nd figure	<div><div></div><div></div><div></div></div>	<div>I</div>	<div><div></div><div></div><div></div><div></div></div>
<div>J</div>	Changes 2nd figure (see examples)	<div><div></div><div></div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div><div></div><div></div></div>

?

J

H

J

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Operator	Effect	Input	Process	Output
E	Changes shading of all figures		E	
F	Changes size and shape of all figures		F	
G	Changes 4th figure (see examples)		G	
			G F	

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Operator	Effect
	Changes size and shading of small figures
	Deletes 1st figure

Input	Process	Output

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes size and shading of large dark figures		N	
O	Changes triangles (see examples)		O	
P	Swaps 1st and 2nd figure		P	
			O	

?



P



O


P






- ☐


- ☐


- ☐




- ☐





Operator	Effect
	Deletes 2nd figure
	Deletes 3rd figure

Input	Process	Output

- ☐
- ☐
- ☐
- ☐
-
-



Operator	Effect	Input	Process	Output
R	Duplicates dark figures		R	
S	Changes size and shape of small circles		S	
T	Changes shading and shape of 1st figure			
U	Changes 3rd figure (see examples)			

?

S

T

R

- ☐
- ☐
- ☐
- ☐





Operator	Effect
<div><div>A</div><div>B</div></div>	<div>Deletes 3rd figure</div> <div>Changes 1st figure (see examples)</div>

Input	Process	Output
<div><div><div></div><div></div><div></div></div></div>	<div>A</div>	<div><div><div></div><div></div></div></div>
<div><div><div></div><div></div></div></div>	<div>B</div>	<div><div><div></div><div></div></div></div>

?

B



Operator	Effect
L	Changes light figures (see examples)
M	Swaps 2nd and 1st figure
N	Changes 4th figure (see examples)

Input	Process	Output
	L	
	M	
	N	

L ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Duplicates 2nd figure</div> <div>Changes size and shape of light triangles</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div></div></div>	<div><div>E</div><div>F</div></div>	<div><div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div></div>

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E

F

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Operator	Effect	Input	Process	Output
F	Changes shape of all figures		F	
G	Changes size of all figures		G	
H	Changes shading of dark figures		H	
I	Changes 3rd figure (see examples)		I	

G

H

?

- ☐
- ☐
- ☐

✓
- ☐



Operator	Effect	Input	Process	Output
S	Swaps 2nd and 1st figure			
T	Changes shape of 3rd figure			
U	Duplicates dark figures			
V	Changes shape of 2nd figure			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Swaps figures (see examples)		L	
M	Duplicates triangles		M	
N	Changes 1st figure (see examples)		N	

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L

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Difficulty: Intermediate (10)



Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	<div>Changes size and shading of 2nd figure</div> <div>Changes size of all figures</div>	<div></div> <div></div>	<div><div>S</div><div>T</div></div>	<div></div> <div></div>

S

T

S

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Changes shading and shape of all figures			
B	Changes 3rd figure (see examples)			
C	Changes shading and shape of 4th figure			
D	Duplicates light circles			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
R	Swaps figures (see examples)		R	
S	Changes size and shape of 1st figure		S	
T	Duplicates 1st figure		T	
U	Deletes 2nd figure		U	

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U

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Operator	Effect	Input	Process	Output
<div>O</div>	Duplicates dark figures		<div>O</div>	
<div>P</div>	Swaps figures (see examples)		<div>P</div>	
<div>Q</div>	Changes 2nd figure (see examples)		<div>Q</div>	
			<div>Q P</div>	

Q

 ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	<div>Swaps figures (see examples)</div> <div>Changes 2nd figure (see examples)</div>	<div></div>	<div>I</div>	<div></div>
		<div></div>	<div>J</div>	<div></div>
		<div></div>	<div>J</div>	<div></div>
		<div></div>	<div>I</div>	<div></div>

?

J



Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Changes 1st figure (see examples)	<div><div>△</div><div>●</div></div>	<div>H</div>	<div><div>△</div><div>●</div></div>
	Changes shading of all figures	<div><div>△</div><div>△</div></div>	<div>I</div>	<div><div>△</div><div>△</div></div>

●

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I H I ?

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- ☐

△

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- ☐

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- ☐

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Operator	Effect	Input	Process	Output
B	Deletes 4th figure		B	
C	Changes shading and shape of all figures		C	
D	Duplicates 3rd figure		D	
E	Duplicates 4th figure		E	

? D E

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
T	Changes shading of 1st figure			
U	Deletes dark triangles			
V	Changes size and shading of all figures			
W	Duplicates 4th figure			

?

T

V

- ☐

✓
- ☐

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- ☐
- ☐



rator	Effect	Input	Process	Output
N	Changes size of 1st figure		N	
O	Duplicates large dark figures		O	
P	Changes size of large light figures		P	
Q	Changes size of large triangles		Q	

NQ P ?

- ☐
- ☐
- ☐
- ☐
- ✓



Operator	Effect	Input	Process	Output
C	Duplicates 2nd figure		C	
D	Changes shading and shape of 1st figure		D	
E	Changes size and shading of 2nd figure		E	

?

C

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>C</div>	Changes size and shape of all figures		<div>C</div>	
<div>D</div>	Changes 1st figure (see examples)		<div>D</div>	

? C D C

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
B	Changes large figures (see examples)		B	
C	Changes shading of small figures		C	
D	Changes size and shape of all figures		D E	
E	Duplicates 1st figure		E D	

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Operator	Effect	Input	Process	Output
U	Duplicates 2nd figure		U	
V	Changes size and shape of small triangles		V	
W	Changes shading of all figures		W	
			W V	

VW?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Changes light figures (see examples)		<div>O</div>	
	Changes size of all figures		<div>P</div>	
			<div>O</div>	
			<div>O</div>	

P

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- ☐

✓
- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Duplicates 1st figure		<div>I</div>	
	Deletes 1st figure		<div>J</div>	
			<div>J</div>	
			<div>J</div>	

?

I

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>T</div>	Changes shading of 1st figure	<div><div>triangle</div><div>triangle</div></div>	<div>T</div>	<div><div>triangle</div><div>triangle</div></div>
<div>U</div>	Swaps figures (see examples)	<div><div>triangle</div><div>triangle</div></div>	<div>U</div>	<div><div>triangle</div><div>triangle</div></div>
		<div><div>triangle</div><div>circle</div></div>	<div>T</div>	<div><div>triangle</div><div>circle</div></div>
		<div><div>triangle</div><div>circle</div></div>	<div>T</div>	<div><div>triangle</div><div>circle</div></div>

?

U

T

U

triangle

circle

triangle

triangle

circle

triangle

circle

circle

triangle

circle

✓



Operator	Effect	Input	Process	Output
<div>J</div>	Changes large dark figures (see examples)		<div>J</div>	
<div>K</div>	Changes shading of all figures		<div>K</div>	
			<div>J</div>	

K

 ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>L</div>	Changes size of 2nd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
<div>M</div>	Duplicates dark circles	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>M</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

L

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Operator	Effect	Input	Process	Output
<div>E</div>	Changes size and shape of large light triangles		<div>E</div>	
<div>F</div>	Duplicates 2nd figure		<div>F</div>	

?

F

E

F

- ☐
- ☐

✓
- ☐

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- ☐



Operator	Effect	Input	Process	Output
D	Duplicates dark figures		D	
E	Changes shading of all figures		E	
F	Changes shading of 1st figure		F G	
G	Duplicates circles		G F	



D ?

☐



☐



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Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
E	Changes shape of 3rd figure		E	
F	Deletes 3rd figure		F	
G	Duplicates 2nd figure		G	

G

F

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
K	Deletes 3rd figure			
L	(see examples)			
M	Changes shape of all figures			
N	Changes size of all figures			

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>Q</div>	Changes size and shape of small figures	<div></div>	<div>Q</div>	<div></div>
<div>R</div>	Changes 1st figure (see examples)	<div></div>	<div>R</div>	<div></div>

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R

Q

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Operator	Effect	Input	Process	Output
S	Changes size of all figures		S	
T	Swaps figures (see examples)		T	
U	Changes 1st figure (see examples)		U	
V	Duplicates dark circles		V	

U S ?

- ☐

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
E	(see examples)		E	
F	Changes light figures (see examples)		F	
G	Changes 1st figure (see examples)		G	

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E

F

G

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Operator	Effect	Input	Process	Output
P	Swaps figures (see examples)		P	
Q	Changes shading of all figures		Q	
R	Duplicates large light triangles		R	
S	Duplicates 3rd figure		S	

?

S

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>P</div>	Changes 2nd figure (see examples)	<div><div>▲</div><div>▲</div></div>	<div>P</div>	<div><div>▲</div><div>●</div></div>
<div>Q</div>	Changes large light figures (see examples)	<div><div>●</div><div>▲</div><div>●</div></div>	<div>Q</div>	<div><div>●</div><div>▲</div><div>●</div></div>
		<div><div>●</div><div>▲</div></div>	<div>P</div>	<div><div>●</div><div>●</div></div>
		<div><div>●</div><div>●</div><div>▲</div><div>▲</div></div>	<div>Q</div>	<div><div>●</div><div>●</div><div>▲</div><div>▲</div></div>

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Q

P

Q

▲

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Operator	Effect	Input	Process	Output
M	Changes size and shading of 3rd figure		M	
N	Changes 1st figure (see examples)		N	
O	Duplicates large figures		O	

M ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
S	Swaps 3rd and 2nd figure			
T	Swaps 2nd and 4th figure			
U	(see examples)			
V	Deletes 1st figure			

? S U

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Operator	Effect	Input	Process	Output
J	(see examples)			
K	Swaps 3rd and 4th figure			
L	Changes shading and shape of all figures			
M	Changes shape of 2nd figure			

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KMK

- ☐
- ☐

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- ☐
- ☐

Difficulty: Hard (34)



Operator	Effect	Input	Process	Output
	Changes 2nd figure (see examples)			
	Deletes dark circles			
	Changes size of dark triangles			
	Changes size of 1st figure			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
Q	Changes dark figures (see examples)		Q	
R	Changes 3rd figure (see examples)		R	
S	Changes shading and shape of circles		S	
			S R	

? R S

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Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Changes shading of 4th figure	<div><div></div><div></div><div></div><div></div></div>	<div><div>G</div></div>	<div><div></div><div></div><div></div><div></div></div>
<div><div>H</div></div>	Changes shape of 2nd figure	<div><div></div><div></div><div></div><div></div></div>	<div><div>H</div></div>	<div><div></div><div></div><div></div><div></div></div>
<div><div>I</div></div>	Changes dark triangles (see examples)	<div><div></div><div></div><div></div><div></div></div>	<div><div>I</div></div>	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	<div><div>I</div></div>	<div><div></div><div></div><div></div><div></div></div>

?

I

G

H

- ☐

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Operator	Effect	Input	Process	Output
N	Changes 1st figure (see examples)		N	
O	Deletes 2nd figure		O	
P	Changes shape of 3rd figure		P	

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NPN

- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
F	Swaps 3rd and 2nd figure		F	
G	Changes 3rd figure (see examples)		G	
H	Changes 1st figure (see examples)		H	
			H G	

F ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>H</div>	Swaps figures (see examples)		<div>H</div>	
<div>I</div>	Changes dark triangles (see examples)		<div>I</div>	
<div>J</div>	Duplicates 2nd figure		<div>J</div>	
			<div>I</div>	

?

H

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
I	Changes 3rd figure (see examples)			
J	Duplicates 1st figure			
K	Deletes 1st figure			

?

KJ I

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Swaps 2nd and 1st figure		A	
B	Duplicates large figures		B	
C	Deletes 2nd figure		C	
D	Duplicates 3rd figure		D	

?

D

C

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
V	Duplicates triangles		V	
W	Changes size and shading of 1st figure		W	
X	Changes size of all figures		X	
			X W	

? X W V

- ☐
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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	Swaps figures (see examples)	<div><div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div></div></div></div>	<div><div>U</div><div>V</div></div>	<div><div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div></div></div></div>

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V

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Difficulty: Intermediate (18)



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Changes 1st figure (see examples)		<div>T</div>	
	Changes size of all figures		<div>U</div>	
			<div>U</div>	
			<div>U</div>	

?

U

- ☐
- ☐

✓

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- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Changes size and shading of 1st figure		B	
C	Changes shading of 1st figure		C	
D	Changes size and shape of 2nd figure		D	

?

D

B

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
P	Changes large light triangles (see examples)			
Q	Changes dark figures (see examples)			
R	Deletes dark circles			
S	Changes shape of large figures			

Q S Q ?

- ☐
- ☐
- ☐
- ☒



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	<div>Changes dark figures (see examples)</div> <div>Changes large figures (see examples)</div>	<div></div> <div></div> <div></div> <div></div>	<div>P</div> <div>Q</div> <div>Q</div> <div>P</div>	<div></div> <div></div> <div></div> <div></div>

?

P

Q

- ☐
- ☐
- ☐

✓

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- ☐



Operator	Effect	Input	Process	Output
V	Changes 3rd figure (see examples)		V	
W	Duplicates 1st figure		W	
X	Changes shape of 1st figure		X	
Y	Duplicates 3rd figure		Y	

W X W ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
V	Changes size of all figures		V	
W	Deletes 2nd figure		W	
X	Swaps figures (see examples)		X Y	
Y	Changes shape of all figures		Y X	

?

V

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>G</div>	Duplicates 2nd figure		<div>G</div>	
<div>H</div>	Duplicates 1st figure		<div>H</div>	
<div>I</div>	Changes shape of 2nd figure		<div>I</div>	
<div>J</div>	Changes shape of 3rd figure		<div>J</div>	

H

I

J

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
L	Changes 2nd figure (see examples)			
M	Swaps 2nd and 1st figure			
N	Deletes 1st figure			

?

M

- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Deletes small dark circles		<div><div>G</div></div>	
<div><div>H</div></div>	Duplicates small dark circles		<div><div>H</div></div>	
<div><div>I</div></div>	Changes shading and shape of light triangles		<div><div>I</div></div>	

H

G

I

?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
B	Swaps figures (see examples)			
C	Changes 2nd figure (see examples)			
D	Changes large triangles (see examples)			

- ☐
- ☐
- ☐
- ☒





Operator	Effect	Input	Process	Output
H	Changes 4th figure (see examples)			
I	Changes size and shading of 2nd figure			
J	Deletes 1st figure			
K	Changes size of 1st figure			

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J

- ☐
- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
H	Swaps 2nd and 3rd figure		H	
I	Duplicates 2nd figure		I	
J	Changes size and shape of 1st figure		J	
K	Deletes 2nd figure		K	

? K I

- ☐
 - ☐
 - ☐
 - ☐
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Operator	Effect	Input	Process	Output
J	Changes 1st figure (see examples)		J	
K	Duplicates 2nd figure		K	
L	Changes 1st figure (see examples)		L M	
M	Changes shape of small figures		M L	

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MJ

- ☐



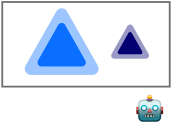


✓
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- ☐
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Operator	Effect	Input	Process	Output
A	Changes shading of 2nd figure		A	
B	(see examples)		B	
C	Changes 1st figure (see examples)		C	
D	Deletes triangles		D	

 C ?

- ☐ 
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- ☐ 



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Deletes dark figures		P	
	Duplicates 2nd figure		Q	
			Q	
			Q	

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Q

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Operator	Effect	Input	Process	Output
<div>N</div>	Swaps 2nd and 1st figure	<div><div>▲</div><div>●</div><div>●</div></div>	<div>N</div>	<div><div>●</div><div>▲</div><div>●</div></div>
<div>O</div>	Changes 2nd figure (see examples)	<div><div>●</div><div>●</div></div>	<div>O</div>	<div><div>●</div><div>▲</div></div>

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O

N

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Operator	Effect	Input	Process	Output
N	Changes small light figures (see examples)		N	
O	Changes 1st figure (see examples)		O	
P	Changes size and shading of triangles		P	
			PO	

?

O

P

O

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
A	Changes size and shape of 2nd figure		A	
B	Changes shape of 3rd figure		B	
C	Deletes 4th figure		C	

?

C

A

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>G</div></div>	Changes 2nd figure (see examples)	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div><div>G</div></div>	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>
<div><div>H</div></div>	Changes shape of 1st figure	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div><div>H</div></div>	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>
<div><div>I</div></div>	Duplicates 2nd figure	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div><div>I</div></div>	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>
		<div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div><div>I</div></div>	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>

?

I



Operator	Effect	Input	Process	Output
V	Changes 1st figure (see examples)		V	
W	Changes shape of 3rd figure		W	
X	Duplicates light figures		X Y	
Y	Duplicates 2nd figure		Y X	

? Y

- ☐
 - ☐
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 - ☐
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Operator	Effect	Input	Process	Output
U	Swaps 2nd and 1st figure		U	
V	Changes size and shading of all figures		V	
W	Changes size of all figures		W X	
X	Changes 2nd figure (see examples)		X W	

? W U

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
P	Changes shading of 2nd figure			
Q	Changes size and shading of all figures			
R	Changes size and shape of dark circles			
S	Duplicates large light figures			







- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
B	Deletes large circles		B	
C	Duplicates 4th figure		C	
D	Changes size and shape of 2nd figure		D E	
E	Changes 1st figure (see examples)		E D	

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
J	Changes shape of 2nd figure		J	
K	Changes shading and shape of all figures		K	
L	Duplicates 2nd figure		L	
M	Changes 4th figure (see examples)		M	

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Operator	Effect	Input	Process	Output
P	Changes 1st figure (see examples)		P	
Q	(see examples)		Q	
R	Changes size of all figures		R	
S	Changes shape of 1st figure		S	

? S

- ☐
- ☐
- ☐
- ☐









Operator	Effect	Input	Process	Output
<div>D</div>	Deletes large figures		<div>D</div>	
<div>E</div>	Duplicates large figures		<div>E</div>	
<div>F</div>	Duplicates 4th figure		<div>F</div>	



E

 ?

- ☐ 
- ☐ 


- ☐ 
- ☐ 



Operator	Effect	Input	Process	Output
V	Changes 2nd figure (see examples)			
W	Changes shape of large figures			
X	Deletes 2nd figure	Nothing		Nothing
Y	Deletes small circles			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
K	Changes 4th figure (see examples)		K	
L	Changes size and shading of 1st figure		L	
M	Changes size and shape of all figures		M	
N	Changes 2nd figure (see examples)		N	

?

K

N

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
E	Duplicates 3rd figure		E	
F	Deletes 1st figure		F	
G	Changes 2nd figure (see examples)		G	
H	Duplicates 4th figure		H	

G

E

F

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	<div>Changes size of 1st figure</div> <div>Changes 1st figure (see examples)</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div><div>I</div><div>J</div></div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div><div><div></div><div></div></div></div>

I

?



Operator	Effect	Input	Process	Output
R	Deletes 4th figure		R	
S	Deletes 3rd figure		S	
T	Duplicates 2nd figure		T	

T

S

?

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes triangles (see examples)		N	
O	Changes 2nd figure (see examples)		O	
P	Changes shape of all figures		P	
			PO	

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P

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Changes size and shape of small light figures		M	
N	Deletes 2nd figure		N	
O	Swaps figures (see examples)		O	
P	Changes size and shape of 2nd figure		P	

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P

M

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>C</div>	Changes size of 2nd figure		<div>C</div>	
<div>D</div>	Changes small dark triangles (see examples)		<div>D</div>	

?

D



Operator	Effect	Input	Process	Output
Q	(see examples)		Q	
R	Changes size and shading of 1st figure		R	
S	Deletes 2nd figure		S	
			S R	

R ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	<div>Changes 2nd figure (see examples)</div> <div>Changes shading of 4th figure</div>	<div><div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div> <div><div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div> <div><div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div>	<div><div>F</div><div>G</div><div>F</div></div>	<div><div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div> <div><div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div> <div><div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div>

F

G

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- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div></div>	Changes size of small triangles	<div><div><div></div><div></div><div></div></div></div>	<div><div>K</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>L</div></div>	Changes shading of all figures	<div><div><div></div><div></div><div></div></div></div>	<div><div>L</div></div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div><div>L</div></div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>L</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>

?

L



Operator	Effect	Input	Process	Output
E	Changes shading and shape of 1st figure		E	
F	Deletes 2nd figure		F	
G	Changes size and shading of all figures		G	
			G F	

F

E

F

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>J</div>	Changes 1st figure (see examples)	<div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div></div>
<div>K</div>	Duplicates 2nd figure	<div><div></div><div></div><div></div></div>	<div>K</div>	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div></div>

K

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Operator	Effect	Input	Process	Output
T	Changes shading and shape of all figures		T	
U	Changes shape of 1st figure		U	
V	Changes 1st figure (see examples)	Nothing		Nothing
W	Changes shading and shape of small light triangles		W V	

?

T

V

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
F	Changes size of small dark circles		F	
G	Changes shape of 3rd figure		G	
H	Swaps 2nd and 1st figure		H	
			H G	

HGH?

- ☐

✓
- ☐
- ☐

🤖
- ☐



Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	Duplicates 1st figure		B	
	Duplicates small triangles		C	
			C	

C

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
B	(see examples)		B	
C	Changes 1st figure (see examples)		C	
D	Duplicates 2nd figure		D E	
E	Changes size and shape of small figures		E D	

E ?

- ☐

✓
- ☐
- ☐

🤖
- ☐



Operator	Effect	Input	Process	Output
<div>O</div>	Changes dark figures (see examples)		<div>O</div>	
<div>P</div>	Changes size and shading of all figures		<div>P</div>	
<div>Q</div>	Changes 3rd figure (see examples)		<div>Q</div>	

?

O

P

Q

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Operator	Effect	Input	Process	Output
<div>D</div>	Swaps 1st and 2nd figure	<div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div></div>
<div>E</div>	Changes shading and shape of 1st figure	<div><div></div><div></div></div>	<div>E</div>	<div><div></div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	<div>E</div>	<div><div></div><div></div><div></div><div></div></div>

?

E

D

✓



Operator	Effect	Input	Process	Output
B	Changes size and shape of 1st figure		B	
C	Changes circles (see examples)		C	
D	Duplicates dark triangles		D	

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D

- ☐
- ☐
- ☐
- ☐

✓

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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Swaps figures (see examples) Changes 2nd figure (see examples)	<div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div>	<div><div>O</div><div>P</div></div>	<div><div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div><div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div></div>

?

P

Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	Duplicates 2nd figure		<div>R</div>	
	Deletes 1st figure		<div>S</div>	
			<div>S</div>	
			<div>S</div>	

?

S

R

S

- ☐
- ☐

✓ 🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
H	Deletes small figures		H	
I	Duplicates small figures		I	
J	Changes small figures (see examples)		J	
K	Changes size of small dark figures		K	

?

I

K

- ☐
- ☐
- ☒

✓🤖
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Changes shape of all figures		<div>T</div>	
	Duplicates 2nd figure		<div>U</div>	
			<div>T</div>	
			<div>U</div>	

?

T

U

T

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	(see examples)	<div><div>▲</div><div>●</div></div>	<div>S</div>	<div><div>●</div><div>▲</div></div>
<div>T</div>	Changes 2nd figure (see examples)	<div><div>●</div><div>●</div><div>●</div></div>	<div>T</div>	<div><div>●</div><div>●</div><div>●</div></div>

●

●

●

S

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- ☐

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Operator	Effect	Input	Process	Output
N	(see examples)		N	
O	Changes size of small triangles		O	
P	Duplicates small light figures		P	

?

O

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	<div>(see examples)</div> <div>Changes large light triangles (see examples)</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>L</div> <div>M</div> <div>M</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div></div>

M

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- ✓
- 🤖
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Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Changes size and shape of all figures		<div>I</div>	
	Duplicates small figures		<div>J</div>	
			<div>J</div>	

?

I

J

- ☐
- ☐
- ☐
- ☐

✓



Operator	Effect	Input	Process	Output
U	Changes 1st figure (see examples)		U	
V	Changes circles (see examples)		V	
			U	

?

VU

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
D	Swaps figures (see examples)		D	
			E	
E	Duplicates dark figures		E	
			D	

?

D

- ☐
- ☐
- ☐

✓
- ☐



Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	Changes size and shading of 3rd figure		<div>V</div>	
	Duplicates 1st figure		<div>W</div>	
			<div>W</div>	

?

V

- ☐

✓
- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
I	Duplicates 2nd figure			
J	Deletes large light circles			
K	Swaps figures (see examples)			
L	Deletes 2nd figure			

I K L ?

- ☐
- ☐
- ☐
- ☐









Difficulty: Hard (30)



Operator	Effect	Input	Process	Output
K	Changes size of 1st figure		K	
L	Deletes 2nd figure		L	
M	Changes 1st figure (see examples)		M N	
N	Changes size of 2nd figure		N M	

 **M** **K** ?

- ☐ 
- ☐ 

- ☐ 

- ☐ 



Operator	Effect	Input	Process	Output
K	Changes shape of all figures		K	
L	Changes shading of all figures		L	
M	Deletes 2nd figure		M	
			M L	

- ☐
- ☐
- ☐
- ☐



perator	Effect	Input	Process	Output
P	Changes size and shading of all figures		P	
Q	Changes size and shading of 1st figure		Q	
R	Duplicates large triangles		R	
			R Q	

PQP?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	<div>Changes 1st figure (see examples)</div> <div>Swaps figures (see examples)</div>	<div></div> <div></div>	<div>Q</div> <div>R</div>	<div></div> <div></div>

?

R

Q

R

- ☐
- ☐
- ☐
- ☐

Difficulty: Hard (42)



Operator	Effect	Input	Process	Output
J	Changes large triangles (see examples)		J	
K	(see examples)		K	
L	Changes 1st figure (see examples)		L	
			L	

? K

- ☐

✓
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Changes dark figures (see examples)		L	
M	(see examples)		M	
N	Deletes small light figures	Nothing	Nothing	Nothing
O	Changes shading and shape of 2nd figure		O N	

M L ?

- ☐
- ☐
- ☒
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Swaps 2nd and 1st figure		Q	
	Deletes 1st figure		R	
			R	
			R	

Q

?

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shading of all figures</div> <div>Changes size of all figures</div>	<div></div> <div></div> <div></div> <div></div>	<div>T</div> <div>U</div> <div>T</div> <div>T</div>	<div></div> <div></div> <div></div> <div></div>

U

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Changes 2nd figure (see examples)		L	
M	Swaps figures (see examples)		M	
			L	
			M	

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M

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Operator	Effect	Input	Process	Output
T	Deletes large figures		T	
U	(see examples)		U	
V	Changes shape of all figures		V	
W	Swaps figures (see examples)		W	

?

U

V

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Swaps figures (see examples)		A	
B	Deletes 2nd figure		B	
C	Duplicates 1st figure		C	
			C B	

A ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	<div>Deletes 2nd figure</div> <div>Changes large figures (see examples)</div>	<div></div> <div></div>	<div><div>O</div><div>P</div></div>	<div></div> <div></div>

?

P

- ☐
- ☐
- ☐

✓

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- ☐

Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
L	Changes shape of all figures		L	
M	Changes 3rd figure (see examples)		M	
N	Swaps figures (see examples)		N	
			N M	

? M N M

- ☐

✓
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes 1st figure (see examples)		N	
O	Deletes small dark figures		O	
P	Changes shading and shape of 2nd figure		P	
Q	Changes size and shape of all figures		Q	

N

P

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	<div>Changes size and shading of all figures</div> <div>Duplicates triangles</div>	<div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div></div> <div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div></div> <div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div></div>	<div>R</div> <div>S</div> <div>R</div>	<div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div></div> <div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div></div> <div><div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div></div>

S

R

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Effect

Input

Process

Output

Q	Deletes 3rd figure		Q	
R	(see examples)		R	
S	Duplicates triangles		S T	
T	Changes size of all figures		T S	

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T

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>H</div>	Duplicates 2nd figure		<div>H</div>	
<div>I</div>	Duplicates light triangles		<div>I</div>	
<div>J</div>	Changes 2nd figure (see examples)		<div>J</div>	

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I

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Operator	Effect	Input	Process	Output
<div>C</div>	Deletes 3rd figure	<div><div>▲</div><div>●</div><div>●</div><div>●</div></div>	<div>C</div>	<div><div>▲</div><div>●</div><div>●</div></div>
<div>D</div>	Deletes 2nd figure	<div><div>▲</div><div>▲</div></div>	<div>D</div>	<div><div>▲</div></div>

▲

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D

C

D

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Operator	Effect	Input	Process	Output
N	Changes 1st figure (see examples)		N	
O	Duplicates 2nd figure		O	
P	Changes shading and shape of circles		P	
			P O	

? N P N

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Operator	Effect	Input	Process	Output
J	Swaps figures (see examples)		J	
K	Swaps 1st and 2nd figure		K	
L	Changes shading and shape of all figures		L	
M	Changes size of large figures		M	

LK?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Deletes small dark triangles		F	
	Changes light figures (see examples)		G	
			F	
			G	

F

?

- ☐

✓
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Duplicates 2nd figure		Q	
	Changes 1st figure (see examples)		R	
			Q	

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R

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Operator	Effect	Input	Process	Output
A	Deletes 2nd figure		A	
B	Changes size of 1st figure		B	
C	Changes 2nd figure (see examples)		C D	
D	Changes 3rd figure (see examples)			

? C

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✓ 🤖

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Swaps figures (see examples)		<div>K</div>	
	Swaps 3rd and 4th figure		<div>L</div>	

?

K

L

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	<div>Deletes 2nd figure</div> <div>Changes shading of dark triangles</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>O</div> <div>P</div> <div>O</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div>

?

P

O

✓

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Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Deletes 1st figure		N	
	Deletes 3rd figure		O	
			N	
			N	

? N O N

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	<div>Changes size and shape of all figures</div> <div>Swaps figures (see examples)</div>	<div><div></div><div></div></div>	M	<div><div></div><div></div></div>
		<div><div></div><div></div></div>	N	<div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	N	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	N	<div><div></div><div></div><div></div><div></div></div>

?

N





Operator	Effect	Input	Process	Output
U	Duplicates 1st figure		U	
V	Changes 3rd figure (see examples)		V	
W	Deletes 2nd figure		W	
X	Duplicates 2nd figure		X	

XW?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
D	Swaps 1st and 2nd figure		D	
E	Swaps figures (see examples)		E	
F	Changes size of 2nd figure		F G	
G	Deletes 3rd figure		G F	

?

G

F

- ☐
- ☐
- ☐

✓🤖
- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Changes size and shading of 3rd figure	<div><div>▲</div><div>●</div><div>▲</div></div>	<div>I</div>	<div><div>▲</div><div>●</div><div>▲</div></div>
	Changes 1st figure (see examples)	<div><div>▲</div><div>●</div><div>●</div></div>	<div>J</div>	<div><div>▲</div><div>●</div><div>●</div></div>

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J

I

J

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✓

Difficulty: Hard (40)



Operator	Effect	Input	Process	Output
P	Duplicates 1st figure		P	
Q	Duplicates 4th figure		Q	
R	Changes size and shading of all figures		R	

R

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- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	(see examples) Changes size of triangles	<div><div><div></div><div></div><div></div></div></div>	<div>O</div> <div>P</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>		<div><div><div></div><div></div><div></div><div></div></div></div>

P **O** ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Duplicates 2nd figure		<div>I</div>	
	Duplicates large figures		<div>J</div>	
			<div>J</div>	
			<div>I</div>	

J

I

J

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Changes size of 1st figure		<div>Q</div>	
	Duplicates 3rd figure		<div>R</div>	

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Q

R

Q

- ☐

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
B	Duplicates 1st figure		B	
C	Changes size and shape of 3rd figure		C	
D	Changes shading and shape of all figures		D	
			D C	

?

B

D

- ☐
- ☐

✓

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- ☐
- ☐



Operator	Effect	Input	Process	Output
S	Swaps figures (see examples)			
T	Changes size and shape of all figures			
U	Changes shading of 3rd figure			

?

T













- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes size and shape of all figures			
O	Changes large light circles (see examples)			
P	Changes light circles (see examples)			

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Changes 2nd figure (see examples)</div> <div>Changes size and shape of 1st figure</div>	<div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>	<div><div>G</div><div>H</div></div>	<div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>






G


H

G

?

- ☐





☐







☐







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Operator	Effect	Input	Process	Output
H	Changes size and shape of 3rd figure		H	
I	Changes size and shape of all figures		I	
J	Changes shading and shape of all figures		J	
K	Deletes 2nd figure		K	

J I ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Changes shading of all figures		L	
M	Duplicates large figures		M	
N	Duplicates 1st figure		N O	
O	Duplicates large light figures		O N	

?

M L N

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- ✓
- 🤖
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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	Duplicates 3rd figure		<div>S</div>	
	Deletes 2nd figure		<div>T</div>	
			<div>T</div>	
			<div>S</div>	

T

S

T

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- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Swaps 1st and 3rd figure			
M	Swaps figures (see examples)			
N	Changes size and shading of all figures			
O	Duplicates circles			

?

M

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Swaps 1st and 2nd figure		M	
N	Changes 1st figure (see examples)		N	
O	Swaps figures (see examples)		O	
P	Changes size of 4th figure		P	

?

O

M

O

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Changes size and shape of 3rd figure		M	
N	Duplicates 1st figure		N	
O	Duplicates 2nd figure		O	

?

O

N

M

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	<div>Deletes large figures</div> <div>Changes size of 2nd figure</div>	<div></div>	<div>Q</div>	<div></div>
		<div></div>	<div>R</div>	<div></div>
		<div></div>	<div>R</div>	<div></div>
		<div></div>	<div>Q</div>	<div></div>

? Q R Q

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>V</div>	Changes size of all figures		<div>V</div>	
<div>W</div>	Deletes light circles		<div>W</div>	
<div>X</div>	Changes 2nd figure (see examples)		<div>X</div>	
<div>Y</div>	Changes shading and shape of all figures		<div>Y</div>	

?

X

- ☐
- ☐

✓
- ☐

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- ☐



Operator	Effect	Input	Process	Output
N	Changes size and shading of all figures		N	
O	Changes dark figures (see examples)		O	
P	Changes 3rd figure (see examples)		P	
Q	Changes shading of 1st figure		Q	

O

P

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div><div>Q</div></div>	Changes shading of light circles		<div>O</div>	
	Duplicates 2nd figure		<div>P</div>	
	Swaps figures (see examples)		<div>Q</div>	

?

P

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
M	(see examples)		M	
N	Changes shape of all figures		N	
O	Changes size and shape of 1st figure		O	
P	Changes dark figures (see examples)		P	

?

O

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Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	Changes 3rd figure (see examples)		R	
	Changes shading of small figures		S	
			R	
			S	

?

S

R

S

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Swaps 2nd and 1st figure		<div>L</div>	
	Duplicates 4th figure		<div>M</div>	
			<div>M</div>	

?

M

- ☐
- ☐

✓

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- ☐
- ☐



Operator	Effect	Input	Process	Output
E	Changes shape of 2nd figure		E	
F	Changes 2nd figure (see examples)		F	
G	Changes shading of 3rd figure	Nothing		Nothing
H	Swaps figures (see examples)		H G	

? G F







- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
I	Changes size and shape of 1st figure		I	
J	Changes shading of all figures		J	
K	Duplicates dark figures		K	
			J	

? K

- ☐  
- ☐  
- ☐ 
- ☐ 



Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	Deletes 1st figure		J	
	Deletes 3rd figure		K	
			J	
			J	

?

J

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	<div>Deletes 2nd figure</div> <div>Changes shape of all figures</div>	<div></div> <div></div>	<div>L</div> <div>M</div>	<div></div> <div></div>

?

L

M

L

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Deletes small figures</div> <div>Changes size and shading of triangles</div>	<div></div>	<div>E</div>	<div></div>
		<div></div>	<div>F</div>	<div></div>
		<div></div>	<div>E</div>	<div></div>
		<div></div>	<div>F</div>	<div></div>

?

E

F

E

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Duplicates 1st figure	<div><div><div></div><div></div><div></div></div></div>	<div>O</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Duplicates large light circles	<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div></div></div>

P

O

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Operator	Effect	Input	Process	Output
B	Duplicates small figures		B	
C	Swaps figures (see examples)		C	
D	Changes size and shading of 2nd figure		D E	
E	Duplicates large triangles			

? C

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Swaps figures (see examples)		N	
O	Changes 3rd figure (see examples)		O	
P	Changes size of all figures		P Q	
Q	Changes size and shape of large figures		Q P	

NPN?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
Q	Changes large figures (see examples)		Q	
R	Changes small circles (see examples)		R	
S	Changes 2nd figure (see examples)		S	
			S R	

Q R S ?

- ☐
- ☐
- ☐
- ☐
-



Operator	Effect	Input	Process	Output
F	Deletes small figures		F	
G	Duplicates small dark figures		G	
H	Swaps figures (see examples)		H	
I	Deletes dark circles		I	

G

I

G

?

- ☐
- ☐

✓
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes large figures (see examples)		N	
O	Swaps figures (see examples)		O	
P	Changes shading of all figures		P Q	
Q	Changes size of all figures		Q P	

?

P

O

P

- ☐

✓
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	Changes size and shape of all figures	<div><div></div><div></div></div>	J	<div><div></div><div></div></div>
	Duplicates large dark figures	<div><div></div><div></div></div>	K	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	K	<div><div></div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div><div></div></div>	K	<div><div></div><div></div><div></div><div></div><div></div></div>

?

J

K

J



Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	Deletes large triangles		S	
	Changes size of 2nd figure		T	
			T	

TST ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
Q	Changes shading of triangles		Q	
R	Changes shape of 1st figure		R	
S	Duplicates small figures		S	
T	Duplicates small light figures		T	

?

S

Q

- ☐

✓
- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
D	Changes size of all figures		D	
E	Changes size of 2nd figure		E	
F	Changes light circles (see examples)		F	
G	Swaps 4th and 1st figure		G	

? D

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div><div>D</div></div>	Deletes 3rd figure		<div>B</div>	
	Changes size of dark figures		<div>C</div>	
	Changes shading and shape of large triangles		<div>D</div>	
			<div>D</div> <div>C</div>	

?

C

- ☐

✓
- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
P	Changes 2nd figure (see examples)		P	
Q	Duplicates 1st figure		Q	
R	Changes 1st figure (see examples)		R	
S	Changes size of 2nd figure		S	

? R

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
E	(see examples)		E	
F	Changes shape of dark figures		F	
G	Changes 1st figure (see examples)		G	
			G F	

? E

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>K</div></div>	Duplicates 1st figure		<div><div>K</div></div>	
<div><div>L</div></div>	Duplicates 2nd figure		<div><div>L</div></div>	
<div><div>M</div></div>	Duplicates 3rd figure		<div><div>M</div></div>	

K

M

?

- ☐
- ☐

✓

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
P	Changes shape of all figures		P	
Q	Changes size and shading of 3rd figure		Q	
R	Duplicates 2nd figure		R	
S	Deletes 2nd figure		S	

?

R

P

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Deletes 2nd figure		<div>F</div>	
	Deletes 1st figure		<div>G</div>	

F

G

F

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Duplicates 1st figure		<div>H</div>	
	Duplicates 3rd figure		<div>I</div>	
			<div>H</div>	
			<div>H</div>	

?

H

I

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
T	Duplicates 2nd figure		T	
U	(see examples)		U	
V	Swaps 2nd and 4th figure			
W	Deletes dark triangles			

TW?

- ☐
- ☐
- ☒
- ☐



Operator	Effect	Input	Process	Output
Q	Duplicates small figures		Q	
R	Changes shading of all figures		R	
S	Changes size and shape of all figures		S T	
T	Changes 1st figure (see examples)		T S	

? T

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Operator	Effect	Input	Process	Output
<div>J</div>	Changes shape of 2nd figure		<div>J</div>	
<div>K</div>	Changes shading and shape of all figures		<div>K</div>	
			<div>K</div>	

?

J

K

J

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Deletes 4th figure		Q	
	Changes size and shape of all figures		R	
			R	
			R	

?

Q

R

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Duplicates dark triangles	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div>P</div>	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>
	Changes shading and shape of all figures	<div><div><div></div></div><div><div></div></div></div>	<div>Q</div>	<div><div><div></div></div><div><div></div></div></div>

?

Q

P

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Operator	Effect	Input	Process	Output
E	Changes size of all figures		E	
F	Changes 1st figure (see examples)		F	
G	Deletes 3rd figure		G	

?

F

- ☐
- ☐

✓

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	Deletes 1st figure		M	
	Changes circles (see examples)		N	
			N	

?

N

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	Changes light figures (see examples)		<div>G</div>	
	Changes shading of small figures		<div>H</div>	
	Changes size and shape of all figures		<div>I</div>	
			<div>I</div>	

?

G

H

- ☐
- ☐
- ☐

✓
- ☐



Operator	Effect	Input	Process	Output
<div>O</div>	Changes 1st figure (see examples)		<div>O</div>	
<div>P</div>	Changes 4th figure (see examples)		<div>P</div>	
<div>Q</div>	Changes shading of 1st figure		<div>Q</div>	
<div>R</div>	Changes size and shape of all figures		<div>R</div>	

?

P

O

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Duplicates small light figures		G	
	Changes shading and shape of 2nd figure		H	
			G	
			G	

H

G

H

?

- ☐
- ☐
- ☐
- ☐
-



Operator	Effect	Input	Process	Output
P	Changes 2nd figure (see examples)		P	
Q	(see examples)		Q	
R	Changes 1st figure (see examples)		R	
			Q	

?

Q

R

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div><div>M</div></div>	Duplicates large figures		<div><div>K</div></div>	
	Deletes 1st figure		<div><div>L</div></div>	
	Deletes 2nd figure		<div><div>M</div></div>	

?

K

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
U	Changes large dark triangles (see examples)		U	
V	Deletes 3rd figure		V	
W	Changes size and shading of all figures		W	
X	Changes shading and shape of 3rd figure		X	

?

X

V

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Operator	Effect	Input	Process	Output
N	Swaps figures (see examples)		N	
O	Changes small triangles (see examples)		O	
P	Duplicates 2nd figure		P Q	
Q	Changes size of 2nd figure		Q P	

 N Q ?

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perator	Effect	Input	Process	Output
E	Duplicates large figures		E	
F	Swaps 1st and 3rd figure		F	
G	Deletes 4th figure		G	
H	Changes 1st figure (see examples)		H	

H F ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Changes shape of all figures		<div>F</div>	
	Duplicates 1st figure		<div>G</div>	

F

G

?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>T</div>	Changes small figures (see examples)	<div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div></div>
<div>U</div>	Changes size and shape of all figures	<div><div></div><div></div></div>	<div>U</div>	<div><div></div><div></div></div>
<div>V</div>	Changes 2nd figure (see examples)	<div><div></div><div></div><div></div></div>	<div>V</div>	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div></div>	<div>V</div> <div>U</div>	<div><div></div><div></div></div>

?

V

✓



Operator	Effect	Input	Process	Output
N	Swaps 3rd and 2nd figure			
O	Changes 2nd figure (see examples)			
P	Changes shading and shape of 4th figure			
Q	Changes small light circles (see examples)			

?

- ☐
- ☐
- ☐
- ☐

Difficulty: Hard (40)



Operator	Effect	Input	Process	Output
F	Duplicates 3rd figure		F	
G	Changes shading of 1st figure		G	
H	Duplicates 2nd figure		H	

F

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>M</div>	Duplicates 4th figure	<div></div> <div></div> <div></div> <div></div>	<div>M</div>	<div></div> <div></div> <div></div> <div></div> <div></div>
<div>N</div>	Changes shading and shape of 1st figure	<div></div> <div></div> <div></div>	<div>N</div>	<div></div> <div></div> <div></div>

?

M

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Operator	Effect	Input	Process	Output
I	Deletes large triangles			
J	Changes shading of 1st figure			
K	Duplicates dark circles			
L	Changes shading of 4th figure			

? K

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
B	Changes 1st figure (see examples)		B	
C	Swaps figures (see examples)		C	
D	Changes shape of 2nd figure		D	
			D C	

D

C

B

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
T	Deletes 4th figure			
U	Deletes 3rd figure			
V	Duplicates 4th figure			

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Duplicates 1st figure	<div><div><div></div><div></div></div></div>	G	<div><div><div></div><div></div><div></div></div></div>
	Changes shape of all figures	<div><div><div></div><div></div><div></div></div></div>	H	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	H	<div><div><div></div><div></div><div></div><div></div></div></div>

?

G

H

- ✓
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- 🤖
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Operator	Effect	Input	Process	Output
F	Changes dark figures (see examples)		F	
G	Changes size and shape of small circles		G	
H	Changes large light figures (see examples)		H	
I	Duplicates 3rd figure		I	

?

I

G

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>F</div>	Changes size and shading of large triangles		<div>F</div>	
<div>G</div>	Changes size and shape of all figures		<div>G</div>	
<div>H</div>	Changes triangles (see examples)		<div>H</div>	
			<div>H G</div>	

G

H

G

?

- ☐
- ☐
- ☐
- ☐
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Operator	Effect	Input	Process	Output
<div>S</div>	Duplicates 4th figure		<div>S</div>	
<div>T</div>	Swaps figures (see examples)		<div>T</div>	
<div>U</div>	Changes shading of 3rd figure		<div>U</div>	
			<div>S</div>	

?

TU

- ☐

✓
- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	(see examples)		J	
	Changes 4th figure (see examples)		K	
			J	
			J	

?

J

- ☐
- ☐

✓🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>O</div></div>	Changes shape of 1st figure	<div><div><div></div></div><div><div></div></div></div>	<div><div>O</div></div>	<div><div><div></div></div><div><div></div></div></div>
<div><div>P</div></div>	Swaps 1st and 2nd figure	<div><div><div></div></div><div><div></div></div></div>	<div><div>P</div></div>	<div><div><div></div></div><div><div></div></div></div>
<div><div>Q</div></div>	Duplicates 4th figure	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div><div>Q</div></div>	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>

?

P

O

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Swaps 2nd and 1st figure	<div><div></div><div></div></div>	<div>S</div>	<div><div></div><div></div></div>
<div>T</div>	Changes shading and shape of 1st figure	<div><div></div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div><div></div></div>

S



?

- ☐
- ☐
- ☐
- ☐
- ✓



Operator	Effect	Input	Process	Output
C	Duplicates circles		C	
D	Deletes circles		D	
E	Deletes 3rd figure		E	
F	Changes shape of triangles		F	

F E C ?

- ☐
- ☐
 
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Duplicates 4th figure		A	
B	Duplicates 1st figure		B	
C	Swaps figures (see examples)		C	
			A	

?

A

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Duplicates 3rd figure		L	
M	Changes shading of 3rd figure		M	
N	Changes shading and shape of 3rd figure	Nothing		Nothing
O	Changes light figures (see examples)		O N	

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
S	Changes shading of 1st figure		S	
T	Swaps figures (see examples)		T	
U	Changes shading of light figures		U	
V	Duplicates light figures		V	

U

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
C	Changes shading and shape of 3rd figure		C	
D	Deletes circles		D	
E	Deletes 1st figure		E	
F	Changes shading of circles		F	

F ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>H</div></div>	Duplicates 1st figure	<div><div>▲</div><div>●</div></div>	<div>H</div>	<div><div>▲</div><div>▲</div><div>●</div></div>
<div><div>I</div></div>	Changes small circles (see examples)	<div><div>▲</div><div>●</div><div>▲</div><div>●</div></div>	<div>I</div>	<div><div>▲</div><div>●</div><div>▲</div><div>▲</div></div>
<div><div>J</div></div>	Changes size and shading of 2nd figure	<div><div>●</div><div>▲</div><div>▲</div></div>	<div>J</div>	<div><div>●</div><div>▲</div><div>▲</div></div>

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J

H

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Duplicates 1st figure</div> <div>Changes size and shape of dark figures</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>G</div> <div>H</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div></div></div>

H

G

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- ☐
- ☐





Operator	Effect	Input	Process	Output
R	Deletes small dark triangles			
S	Changes size of dark figures			
T	Duplicates 2nd figure			
U	Changes 2nd figure (see examples)			



- ☐
- ☐


- ☐


- ☐



Operator	Effect	Input	Process	Output
F	Duplicates 3rd figure		F	
G	Changes size and shading of 2nd figure		G	
H	Changes size and shape of all figures		H I	
I	Duplicates 2nd figure		I H	

? I

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	Changes shape of all figures		A	
	Changes 1st figure (see examples)		B	
			A	

?

B

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- ☐



Operator	Effect	Input	Process	Output
F	Changes large circles (see examples)			
G	Swaps 4th and 3rd figure			
H	Swaps 3rd and 2nd figure			
I	Deletes light figures			

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- ☐  
- ☐ 
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Operator	Effect	Input	Process	Output
<div>L</div>	Changes size and shading of all figures	<div><div></div><div></div></div>	<div>L</div>	<div><div></div><div></div></div>
<div>M</div>	Changes shading and shape of all figures	<div><div></div><div></div></div>	<div>M</div>	<div><div></div><div></div></div>

M

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Operator	Effect	Input	Process	Output
L	Duplicates 2nd figure		L	
M	Swaps figures (see examples)		M	
N	Changes size and shape of all figures		N	
O	Changes 3rd figure (see examples)		O	

M O N ?

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
R	(see examples)		R	
S	Changes 1st figure (see examples)		S	
T	Duplicates 3rd figure		T	
U	Changes shading of 4th figure		U	

U S R ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
I	Duplicates 1st figure		I	
J	Changes size and shading of all figures		J	
			I	
			J	

?

I

J

I

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
A	Duplicates 1st figure		A	
B	Changes 3rd figure (see examples)		B	
C	Changes size of 1st figure		C	
D	Deletes small figures		D	

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C

D

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- ☐

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Operator	Effect	Input	Process	Output
Q	Duplicates 2nd figure		Q	
R	Changes size of 2nd figure		R	
S	Changes size and shading of triangles		S	

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Operator	Effect	Input	Process	Output
<div>G</div>	Changes 1st figure (see examples)		<div>G</div>	
<div>H</div>	Changes size and shape of circles		<div>H</div>	
<div>I</div>	Changes large light triangles (see examples)	Nothing	Nothing	Nothing
<div>J</div>	Swaps figures (see examples)		<div>J</div> <div>I</div>	

?

G

J

I

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perator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	Duplicates 2nd figure		E	
	Changes size of 3rd figure		F	
			E	
			F	

?

F

E

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Deletes 2nd figure	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	Q	<div><div><div></div><div></div></div></div>
	Duplicates 3rd figure	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	R	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	Q	<div><div><div></div></div></div>

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R

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Operator	Effect	Input	Process	Output
J	Duplicates 2nd figure		J	
K	Changes size and shape of all figures		K	
L	Deletes light figures		L	

?

J

K

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Operator	Effect	Input	Process	Output
B	Deletes 1st figure		B	
C	Deletes dark figures		C	
D	Duplicates 3rd figure		D	
E	Changes circles (see examples)		E	

? B C Nothing

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div><div>S</div></div>	Changes size of all figures		<div>Q</div>	
	Changes shape of 4th figure		<div>R</div>	
	Deletes 3rd figure		<div>S</div>	

?

Q

R

S

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- ☐
- ☐
- ☐





Operator	Effect
	Swaps figures (see examples)
	Changes size and shape of 1st figure

Input	Process	Output

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
L	Duplicates 1st figure		L	
M	(see examples)		M	
N	Deletes light figures			
O	Duplicates small figures			

? N

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- ☐
- ☐
- ☐



Difficulty: Very Easy (5)



Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div><div>Q</div></div>	Changes 2nd figure (see examples)		<div>O</div>	
	Deletes 3rd figure		<div>P</div>	
	Deletes small light circles		<div>Q</div>	

O

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Operator	Effect	Input	Process	Output
E	Changes size of all figures		E	
F	Swaps figures (see examples)		F	
G	Changes size and shape of 2nd figure		G	
			G F	

?

E

F

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>G</div>	Duplicates 1st figure		<div>G</div>	
<div>H</div>	Changes shape of all figures		<div>H</div>	
<div>I</div>	Changes size of 1st figure		<div>I</div> <div>J</div>	
<div>J</div>	Changes size and shape of all figures		<div>J</div> <div>I</div>	

I

J

I

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- ☐

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Operator	Effect	Input	Process	Output
<div>V</div>	Changes size and shading of 1st figure		<div>V</div>	
<div>W</div>	Changes size of 3rd figure		<div>W</div>	
<div>X</div>	Changes 2nd figure (see examples)		<div>X</div>	

W ?

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Operator	Effect	Input	Process	Output
<div>F</div>	Changes shading of all figures		<div>F</div>	
<div>G</div>	Duplicates 2nd figure		<div>G</div>	
<div>H</div>	Changes shape of circles		<div>H I</div>	
<div>I</div>	Changes dark figures (see examples)		<div>I H</div>	

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G F H

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>T</div>	Changes shading of all figures		<div>T</div>	
<div>U</div>	Changes size of 2nd figure		<div>U</div>	
<div>V</div>	Deletes 2nd figure		<div>V</div>	
			<div>V</div> <div>U</div>	

U

V

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Operator	Effect	Input	Process	Output
<div>O</div>	Deletes 1st figure		<div>O</div>	
<div>P</div>	Deletes 2nd figure		<div>P</div>	
<div>Q</div>	Changes shape of circles		<div>Q</div>	
<div>R</div>	Changes 3rd figure (see examples)		<div>R</div>	

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Q

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Operator	Effect	Input	Process	Output
C	Changes size and shading of 1st figure		C	
D	Deletes small triangles		D	
E	Changes shape of all figures		E	
F	Swaps figures (see examples)		F	

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C

F

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Operator	Effect	Input	Process	Output
D	Deletes 2nd figure			
E	Deletes dark triangles			
F	Changes size and shading of 4th figure			
G	Swaps 2nd and 3rd figure			

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G

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Operator	Effect	Input	Process	Output
R	Deletes 2nd figure		R	
S	Duplicates 2nd figure		S	
T	Changes size and shape of all figures		T	
			T S	

? S

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Operator	Effect	Input	Process	Output
R	Duplicates dark figures		R	
S	Duplicates triangles		S	
T	Duplicates circles		T	
U	Duplicates large triangles		U	

?

S

T

S

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- ☐
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Operator	Effect	Input	Process	Output
Q	(see examples)		Q	
R	Swaps 1st and 2nd figure		R	
S	Deletes 1st figure		S	

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Q

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Operator	Effect	Input	Process	Output
<div>S</div>	Changes large dark figures (see examples)	<div><div>▲</div><div>▲</div><div>▲</div></div>	<div>S</div>	<div><div>▲</div><div>●</div><div>▲</div></div>
<div>T</div>	Duplicates 2nd figure	<div><div>▲</div><div>▲</div><div>▲</div></div>	<div>T</div>	<div><div>▲</div><div>▲</div><div>▲</div><div>▲</div></div>

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Operator	Effect	Input	Process	Output
N	Deletes 2nd figure		N	
O	Changes 2nd figure (see examples)		O	
P	Changes shading and shape of all figures		P Q	
Q	Changes size of all figures		Q P	

?

P

O

P

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- ☐

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- ☐
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erator	Effect	Input	Process	Output
I	Duplicates large circles		I	
J	Changes size of 1st figure		J	
			I	
			J	

?

J

I

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Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div></div>	Duplicates 2nd figure		D	
	Duplicates 1st figure		E	
			D	
			E	

?

D

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- ☐



Operator	Effect	Input	Process	Output
R	Duplicates 1st figure		R	
S	Changes shading of 1st figure		S	
T	Changes large light triangles (see examples)		T	
U	Duplicates 2nd figure		U	

?

R

S

R

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
E	Changes 2nd figure (see examples)		E	
F	Duplicates large figures		F	
G	Changes size and shading of 2nd figure		G	
			F	

?

E

G

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Operator	Effect	Input	Process	Output
M	Duplicates small light circles		M	
N	Duplicates 2nd figure		N	
			N	

?

M

N

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Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	Swaps 2nd and 1st figure		V	
	Changes size and shape of 2nd figure		W	
			V	
			W	

V

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Operator	Effect	Input	Process	Output
B	Changes size and shading of all figures		B	
C	Duplicates 1st figure		C	
D	Changes size of all figures		D	
E	Changes shading of 2nd figure		E	

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C

B

D

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- ☐



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Changes size and shading of 1st figure		L	
	Duplicates large dark triangles		M	
			L	
			L	

M

L

M

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Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	<div>Changes 1st figure (see examples)</div> <div>Changes size and shading of all figures</div>	<div><div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div></div></div></div> <div><div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div></div></div></div>	<div>J</div> <div>K</div>	<div><div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div></div></div></div> <div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div>

K

J

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Operator	Effect	Input	Process	Output
J	Changes size and shading of 1st figure		J	
K	Changes shape of 4th figure		K	
L	Swaps figures (see examples)		L	
			L K	

K

L

J

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Operator	Effect	Input	Process	Output
P	Duplicates dark triangles		P	
Q	Changes shape of 2nd figure		Q	
R	Changes size and shading of 2nd figure		R	
			R Q	

 **R** **P** ?

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- ☐  
- ☐ 



Operator	Effect	Input	Process	Output
P	Duplicates 2nd figure		P	
Q	Changes shading of all figures		Q	
R	Changes 2nd figure (see examples)		R	
			R Q	

?

R

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Operator	Effect	Input	Process	Output
M	Changes size and shape of 3rd figure		M	
N	Changes 2nd figure (see examples)		N	
O	Swaps figures (see examples)		O	
			ON	

NO ?

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Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Changes size and shading of all figures		Q	
	Changes size of 3rd figure		R	
			R	

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Q

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Operator	Effect	Input	Process	Output
Q	Changes size of all figures		Q	
R	Changes triangles (see examples)		R	
S	Changes shape of 2nd figure		S	
			S R	

?

R

S

Q

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Operator	Effect	Input	Process	Output
V	Changes size and shading of all figures		V	
W	Deletes 1st figure		W	
X	Changes large triangles (see examples)	Nothing	Nothing	Nothing
Y	Changes shading and shape of 2nd figure		Y X	

? X V X

- ☐
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- ☐
- ☐

Difficulty: Hard (38)



Operator	Effect	Input	Process	Output
<div><div>I</div><div>J</div></div>	Changes size and shape of light circles		<div>I</div>	
	Changes 2nd figure (see examples)		<div>J</div>	
			<div>I</div>	

J

I

J

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Operator	Effect	Input	Process	Output
A	Swaps figures (see examples)		A	
B	Changes 1st figure (see examples)		B	
C	Deletes 3rd figure			
D	Changes shading and shape of 3rd figure			

? C D

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Changes dark figures (see examples)		<div>S</div>	
<div>T</div>	Swaps 2nd and 1st figure		<div>T</div>	
			<div>S</div>	

S

T

?





Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	Swaps 4th and 1st figure	<div><div><div></div><div></div><div></div><div></div></div></div>	V	<div><div><div></div><div></div><div></div><div></div></div></div>
	Changes size of 2nd figure	<div><div><div></div><div></div></div></div>	W	<div><div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	W	<div><div><div></div><div></div><div></div><div></div></div></div>

W

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Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	<div>Swaps 4th and 1st figure</div> <div>Changes shading and shape of small circles</div>	<div><div></div><div></div></div>	<div>B</div> <div>C</div>	<div></div> <div></div>

C

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- ☐
- ☐
- ☐
- ☐

Difficulty: Very Easy (8)






Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>Deletes light figures</div> <div>Swaps 1st and 2nd figure</div>	<div></div> <div></div>	<div>K</div> <div>L</div>	<div></div> <div></div>












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- ☐


- ☐





Operator	Effect	Input	Process	Output
C	Swaps figures (see examples)		C	
D	Duplicates small dark figures		D	
E	Changes size and shading of triangles		E	
F	Changes 1st figure (see examples)		F	

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E

F

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Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	Changes shading of 3rd figure		B	
	Changes size and shading of all figures		C	
			C	

?

C

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Operator	Effect	Input	Process	Output
E	Changes size and shape of light triangles		E	
F	Changes size and shading of all figures		F	
G	Swaps figures (see examples)		G H	
H	Changes shading of small circles			

G

F

H

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Operator	Effect	Input	Process	Output
E	Changes 1st figure (see examples)		E	
F	Changes small light circles (see examples)		F	
G	Changes size of all figures		G	

G

E

F

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Operator	Effect	Input	Process	Output
E	Changes shading and shape of all figures		E	
F	Duplicates 1st figure		F	
G	Duplicates large figures		G	
			G F	

?

G

E

G

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Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div><div>X</div></div>	Changes size and shading of 1st figure		<div>V</div>	
	Changes 1st figure (see examples)		<div>W</div>	
	Changes shading of 2nd figure		<div>X</div>	

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X

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Operator	Effect	Input	Process	Output
T	Changes shading of dark figures		T	
U	Deletes 2nd figure		U	
V	Changes size and shading of 2nd figure		V	
			U	




V


U

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Operator	Effect	Input	Process	Output
T	Duplicates light triangles		T	
U	Changes size of all figures		U	
V	Changes shading of 1st figure		V	
			VU	

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T

V

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Operator	Effect	Input	Process	Output
F	Changes shape of all figures		F	
G	Changes size of small figures		G	
H	Duplicates 3rd figure		H	
I	Changes light circles (see examples)		I	

HFG?

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- ☐





Operator	Effect	Input	Process	Output
<div><div>O</div></div>	Deletes small dark circles		<div><div>O</div></div>	
<div><div>P</div></div>	Changes shape of all figures		<div><div>P</div></div>	
<div><div>Q</div></div>	Duplicates 4th figure		<div><div>Q</div></div>	

Q

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- ☐
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Operator	Effect	Input	Process	Output
A	Swaps figures (see examples)		A	
B	Duplicates 1st figure		B	
C	Duplicates large circles		C	
			C B	

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B

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Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	<div>Changes large light figures (see examples)</div> <div>Changes 1st figure (see examples)</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>	<div>N</div> <div>O</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>

N

O

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- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>O</div>	Swaps 3rd and 2nd figure		<div>O</div>	
<div>P</div>	Changes size and shape of dark triangles		<div>P</div>	
			<div>P</div>	

O

P

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Deletes 2nd figure		A	
B	Changes size and shading of 1st figure		B	
C	Duplicates small triangles		C	
			C B	

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B

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Operator	Effect	Input	Process	Output
Q	Duplicates 1st figure		Q	
R	Deletes 1st figure		R	
S	Changes shading and shape of all figures		S	
T	Changes shading of all figures		T	

? T

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
I	Duplicates 1st figure			
J	Changes shading of large figures			
K	Changes 2nd figure (see examples)			

?

J

K

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	Deletes light circles		B	
	Duplicates 2nd figure		C	
			B	

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C

B

C

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>E</div>	Changes shading of all figures	<div><div></div><div></div></div>	<div>E</div>	<div><div></div><div></div></div>
<div>F</div>	Changes shading of 2nd figure	<div><div></div><div></div><div></div><div></div></div>	<div>F</div>	<div><div></div><div></div><div></div><div></div></div>

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E

F

E



Operator	Effect	Input	Process	Output
M	Changes 2nd figure (see examples)		M	
N	Changes shading of all figures		N	
O	Changes shading and shape of small dark figures		O	
P	Duplicates large light triangles		P	

MNM?

- ☐

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes small figures (see examples)		N	
O	Changes 1st figure (see examples)		O	
P	Changes shape of 4th figure		P	

N P ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shape of 1st figure</div> <div>Deletes 2nd figure</div>	<div><div><div></div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>	<div>T</div> <div>U</div>	<div><div><div></div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div></div></div>

U

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Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
B	Swaps figures (see examples)		B	
C	Changes 3rd figure (see examples)		C	
D	Changes shape of 2nd figure		D	
			C	

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B

C

D

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>O</div>	Swaps 3rd and 1st figure		<div>O</div>	
<div>P</div>	Changes 3rd figure (see examples)		<div>P</div>	
<div>Q</div>	Deletes large light triangles		<div>Q</div>	

O

P

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	Changes shading and shape of 1st figure		<div>S</div>	
	Duplicates 1st figure		<div>T</div>	
			<div>S</div>	
			<div>S</div>	

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S

T

S

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Swaps 2nd and 4th figure Changes large figures (see examples)	<div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div></div><div><div></div><div></div></div></div></div>	<div><div>H</div><div>I</div></div>	<div><div><div><div></div><div></div><div></div><div></div></div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div></div><div></div></div></div></div></div>

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I

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Operator	Effect	Input	Process	Output
M	Changes size of 1st figure		M	
N	Swaps 2nd and 1st figure		N	
O	Swaps figures (see examples)		O	
			O N	

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M

N

M

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Operator	Effect	Input	Process	Output
<div>S</div>	Changes circles (see examples)		<div>S</div>	
<div>T</div>	Changes 1st figure (see examples)		<div>T</div>	
<div>U</div>	Changes 2nd figure (see examples)		<div>U</div>	
			<div>U</div> <div>T</div>	

?

U




T

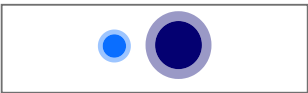





S

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
K	Changes size of all figures		K	
L	Changes shading of all figures		L	
M	Duplicates 1st figure		M	
			M L	

- ☐ 
- ☐ 
- ☐ 
- ☐ 



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shading and shape of all figures</div> <div>Changes small figures (see examples)</div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>T</div><div>U</div></div>	<div><div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div></div></div>

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T

U

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- ☐



Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Duplicates small dark figures		<div>F</div>	
	Changes shape of 2nd figure		<div>G</div>	
			<div>F</div>	

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G

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Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	<div>Changes shading and shape of all figures</div> <div>Duplicates 2nd figure</div>	<div></div>	<div>C</div>	<div></div>
		<div></div>	<div>D</div>	<div></div>
		<div></div>	<div>D</div>	<div></div>
		<div></div>	<div>C</div>	<div></div>

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C

D

C

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>V</div>	Changes shading of 3rd figure	<div><div>▲</div><div>●</div><div>●</div><div>▲</div></div>	<div>V</div>	<div><div>▲</div><div>●</div><div>●</div><div>▲</div></div>
<div>W</div>	Changes dark figures (see examples)	<div><div>▲</div><div>●</div></div>	<div>W</div>	<div><div>▲</div><div>●</div></div>
		<div><div>▲</div><div>●</div><div>●</div></div>	<div>V</div>	<div><div>▲</div><div>●</div><div>●</div></div>

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W

V

W

▲

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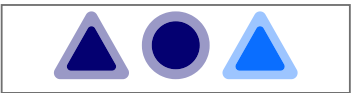
☐



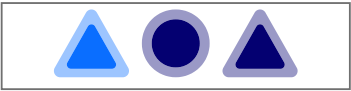
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Operator	Effect	Input	Process	Output
J	Swaps 2nd and 3rd figure		J	
K	Changes light circles (see examples)		K	
L	Duplicates small circles		L	
M	Changes size and shape of 2nd figure		M	

M ?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>C</div>	Changes size and shape of 3rd figure	<div><div></div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div><div></div></div>
<div>D</div>	Changes shape of 1st figure	<div><div></div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div><div></div></div>

D

?



Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	(see examples) Changes shading of all figures	<div><div><div></div><div></div><div></div></div></div>	<div><div>L</div><div>M</div></div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>		<div><div><div></div><div></div><div></div></div></div>

LML?

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Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Changes 2nd figure (see examples)	<div><div>▲</div><div>●</div></div>	<div>O</div>	<div><div>▲</div><div>●</div></div>
	Changes shading of 1st figure	<div><div>●</div><div>●</div></div>	<div>P</div>	<div><div>●</div><div>●</div></div>
		<div><div>●</div><div>●</div></div>	<div>P</div>	<div><div>●</div><div>●</div></div>
		<div><div>▲</div><div>●</div></div>	<div>P</div>	<div><div>▲</div><div>●</div></div>

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P

O

P

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Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Duplicates 1st figure		N	
	Deletes 2nd figure		O	
			N	
			O	

N

O

N

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- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>O</div>	Changes shading of all figures		<div>O</div>	
<div>P</div>	Deletes 1st figure		<div>P</div>	
<div>Q</div>	Duplicates 2nd figure		<div>Q</div>	

Q

P

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- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
D	Changes 3rd figure (see examples)		D	
E	(see examples)		E	
F	Deletes small light figures		F	
G	Changes size of 2nd figure		G	

?

G

D

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>I</div>	Duplicates 1st figure		<div>I</div>	
<div>J</div>	Duplicates large triangles		<div>J</div>	

J

I

J

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- ☐
- ☐
- ☐

Difficulty: Intermediate (20)



Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div><div>X</div></div>	Changes shading and shape of 1st figure		<div>V</div>	
	Changes shape of all figures		<div>W</div>	
	Changes size and shape of light figures		<div>X</div>	
			<div>X</div> <div>W</div>	

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V

W

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
F	Duplicates 3rd figure		F	
G	Deletes small figures		G	
H	Duplicates small figures		H	
I	Changes size of 3rd figure		I	

? H G

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Changes 2nd figure (see examples)		Q	
	Changes size and shading of 3rd figure		R	
			R	
			Q	

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R

Q

R

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
D	Swaps figures (see examples)		D	
E	(see examples)		E	
F	Deletes 3rd figure	Nothing		Nothing
G	Changes shape of 4th figure		G F	

E ?

- ☐

✓
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Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Changes size of 3rd figure		<div>T</div>	
	Changes 2nd figure (see examples)		<div>U</div>	
			<div>U</div>	
			<div>U</div>	

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T

U

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- ☐



Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	Changes 1st figure (see examples)		<div>K</div>	
	Swaps figures (see examples)		<div>L</div>	
			<div>K</div>	

L

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Changes circles (see examples)		A	
B	Swaps 2nd and 3rd figure		B	
C	Changes shading of all figures		C	
			C B	

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A

C

- ☐
- ☐

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Operator	Effect	Input	Process	Output
L	Changes shading of all figures		L	
M	Duplicates 2nd figure		M	
N	Deletes small light figures		N	

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L

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Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Changes shading of 1st figure	<div><div>▲</div><div>▲</div></div>	<div>F</div>	<div><div>▲</div><div>▲</div></div>
	Duplicates 4th figure	<div><div>▲</div><div>▲</div><div>▲</div><div>▲</div></div>	<div>G</div>	<div><div>▲</div><div>▲</div><div>▲</div><div>▲</div><div>▲</div></div>
		<div><div>●</div><div>▲</div><div>●</div><div>●</div></div>	<div>G</div>	<div><div>●</div><div>▲</div><div>●</div><div>●</div><div>●</div></div>

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G

F

G

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Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Changes shading and shape of 2nd figure</div> <div>Duplicates 2nd figure</div>	<div></div> <div></div>	<div>E</div> <div>F</div>	<div></div> <div></div>

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F

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Operator	Effect	Input	Process	Output
U	Changes size of 1st figure		U	
V	Duplicates large circles		V	
W	Deletes 1st figure		W	
			W V	

WU ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>D</div>	Changes shading of 1st figure	<div></div> <div></div> <div></div>	<div>D</div>	<div></div> <div></div> <div></div>
<div>E</div>	Changes size and shape of all figures	<div></div> <div></div> <div></div>	<div>E</div>	<div></div> <div></div> <div></div>

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E

D

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Operator	Effect	Input	Process	Output
B	Duplicates dark triangles		B	
C	Deletes 1st figure		C	
D	Deletes small circles			
E	Changes size of small dark figures			

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E

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	<div>Deletes 1st figure</div> <div>Deletes 3rd figure</div> <div>Deletes large figures</div>	<div><div></div><div></div><div></div></div>	<div>G</div> <div>H</div> <div>I</div>	<div></div> <div></div> <div></div>

? H G I

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
B	Duplicates small light triangles		B	
C	Changes size and shading of 2nd figure		C	
D	Changes size and shading of 1st figure		D E	
E	Changes large figures (see examples)		E D	

E ?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	<div>Changes shading and shape of 1st figure</div> <div>Changes dark triangles (see examples)</div>	<div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div></div>	<div>A</div> <div>B</div>	<div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div></div>

B

A

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- ☐
- ☐

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- ☐
- ☐









Operator	Effect	Input	Process	Output
G	Duplicates 3rd figure		G	
H	Duplicates triangles		H	
I	Changes size and shading of all figures		I J	
J	Changes shape of 2nd figure		J I	







- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
Q	Duplicates 2nd figure		Q	
R	Swaps 4th and 1st figure		R	
S	Swaps figures (see examples)		S	
			S R	

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Q

S

R

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Deletes 1st figure</div> <div>Deletes 2nd figure</div>	<div></div>	<div>T</div> <div>U</div>	<div></div> <div></div>

T

U

T

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
A	Deletes 3rd figure		A	
B	Changes dark circles (see examples)		B	
C	(see examples)		C D	
D	Changes size and shape of dark figures		D C	

C B ?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	Changes large figures (see examples)		M	
	Changes 4th figure (see examples)		N	
			M	
			N	

N

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
P	Changes size and shading of 2nd figure		P	
Q	Changes 1st figure (see examples)		Q	
R	Deletes 4th figure		R	

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P

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Operator	Effect	Input	Process	Output
<div>V</div>	Changes 4th figure (see examples)	<div><div>▲</div><div>●</div><div>●</div><div>●</div></div>	<div>V</div>	<div><div>▲</div><div>●</div><div>●</div><div>▲</div></div>
<div>W</div>	Changes 3rd figure (see examples)	<div><div>●</div><div>▲</div><div>●</div></div>	<div>W</div>	<div><div>●</div><div>▲</div><div>▲</div></div>

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W

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Operator	Effect	Input	Process	Output
U	Changes shape of all figures		U	
V	Changes shape of 2nd figure		V	
W	Changes size of all figures		W X	
X	Changes shading and shape of light figures			

? X

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div><div>O</div><div>P</div></div>	Duplicates 3rd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>O</div>	<div><div><div></div><div></div><div></div><div></div><div></div></div></div>
	Duplicates 2nd figure	<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div></div></div>

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O



Operator	Effect	Input	Process	Output
L	Deletes dark figures		L	
M	Changes shading and shape of all figures		M	
N	Deletes 4th figure		N	
O	Duplicates 4th figure		O	

- ☐
- ☐
- ☐
- ☒



Operator	Effect	Input	Process	Output
T	Duplicates 2nd figure			
U	Changes 1st figure (see examples)			
V	Deletes dark triangles			
W	Deletes 1st figure			

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TWU

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Operator	Effect	Input	Process	Output
J	Changes shape of large figures			
K	Duplicates 2nd figure			
L	Duplicates 4th figure			

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LJL

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	<div>Changes small light figures (see examples)</div> <div>Changes 1st figure (see examples)</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>M</div> <div>N</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div><div></div><div></div></div><div><div></div><div></div></div></div>

M

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Deletes light figures</div> <div>Deletes 1st figure</div>	<div></div> <div></div>	<div>G</div> <div>H</div>	<div></div> <div></div>

?

H

- ☐
- ☐
- ☐
- ☐

Difficulty: Very Easy (7)



Operator	Effect	Input	Process	Output
M	Changes 2nd figure (see examples)		M	
N	Changes size of 3rd figure		N	
O	Duplicates 2nd figure		O	
P	Duplicates large dark figures		P	

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P

N

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- ☐
- ☐



Operator	Effect	Input	Process	Output
E	Changes 3rd figure (see examples)		E	
F	Changes 2nd figure (see examples)		F	
G	Changes shape of triangles		G H	
H	Changes 1st figure (see examples)		H G	

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Operator	Effect	Input	Process	Output
I	Deletes 2nd figure		I	
J	Changes size of 3rd figure		J	
K	Changes 1st figure (see examples)		K	
			K J	

KJ

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- ☐

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- ☐

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- ☐

☐



Operator	Effect	Input	Process	Output
T	Changes shading of all figures		T	
U	Changes shading and shape of light figures		U	
V	Changes shape of all figures		V	
			V U	

? T U V

- ☐
- ☐
- ☐
- ☐







Operator	Effect	Input	Process	Output
<div>O</div>	Changes size of all figures		<div>O</div>	
<div>P</div>	Changes size and shading of all figures		<div>P</div>	
<div>Q</div>	Changes size of small figures		<div>Q</div>	
<div>R</div>	Changes 3rd figure (see examples)		<div>R</div>	




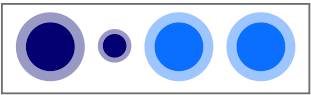
?

P

Q

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Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	Changes 2nd figure (see examples)		B	
	Duplicates 1st figure		C	
			C	
			B	

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B

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
G	Changes small figures (see examples)		G	
H	Changes 1st figure (see examples)		H	
I	Changes shading and shape of 4th figure	Nothing	Nothing	Nothing
J	Swaps 2nd and 1st figure		J I	

I H J ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	Changes shading of all figures		<div><div>M</div><div>N</div></div>	
	Deletes light figures		<div><div>M</div><div>N</div></div>	

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M

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Duplicates 2nd figure		N	
O	Changes size of 2nd figure		O	
P	Duplicates 1st figure		P	
			P O	

N O ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Deletes 3rd figure		N	
O	Changes light figures (see examples)		O	
P	Changes small triangles (see examples)		P	
Q	Changes 2nd figure (see examples)		Q	

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Q

P

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Operator	Effect	Input	Process	Output
Q	Changes shading of all figures			
R	Changes shading and shape of all figures			
S	Changes shape of 3rd figure			
T	Changes 2nd figure (see examples)			

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
A	Changes size and shape of dark triangles		A	
B	Changes size of all figures		B	
C	Duplicates 1st figure		C	
D	Changes shading and shape of dark circles		D	

B

A

B

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
K	Duplicates 2nd figure		K	
L	Duplicates circles		L	
M	Swaps figures (see examples)		M N	
N	Changes shading of all figures		N M	

N L ?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shading and shape of all figures</div> <div>Changes 1st figure (see examples)</div>	<div></div> <div></div>	<div>T</div> <div>U</div>	<div></div> <div></div>

? T U

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Duplicates 1st figure		<div>G</div>	
	Deletes 1st figure		<div>H</div>	
			<div>H</div>	

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G

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- ☐
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Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	<div>Deletes 4th figure</div> <div>Changes 1st figure (see examples)</div>	<div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div><div></div></div></div></div>	<div>J</div> <div>K</div>	<div><div><div><div></div><div></div><div></div><div></div></div></div><div><div><div><div></div><div></div><div></div><div></div></div></div></div></div>

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J

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Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Swaps figures (see examples)	<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div></div></div>
	Changes shading and shape of all figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div></div></div>

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P

Q

P

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Operator	Effect	Input	Process	Output
P	Changes 1st figure (see examples)		P	
Q	Changes shape of 2nd figure		Q	
R	Duplicates 4th figure		R S	
S	Changes shading of 2nd figure			

Q P S ?

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- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>N</div><div>O</div></div>	Changes size of all figures		N	
	Changes 2nd figure (see examples)		O	
			O	


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O

N

O

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- ☐
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- ☐





Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	Duplicates 4th figure		<div>A</div>	
	Deletes 3rd figure		<div>B</div>	

A

B

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Difficulty: Intermediate (12)



Operator	Effect	Input	Process	Output
N	Changes size of 3rd figure		N	
O	Changes shading and shape of all figures		O	
P	Duplicates 3rd figure		P	
			P O	

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P

N

P

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Operator	Effect	Input	Process	Output
<div>O</div>	Duplicates dark figures		<div>O</div>	
<div>P</div>	Deletes small figures		<div>P</div>	
<div>Q</div>	Changes size and shape of small dark figures		<div>Q</div>	

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O

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Operator	Effect	Input	Process	Output
K	Deletes 2nd figure		K	
L	Duplicates 1st figure		L	
M	Changes 3rd figure (see examples)	Nothing	Nothing	Nothing
N	Changes shape of 2nd figure		N M	

N M ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
D	Duplicates dark circles		D	
E	Changes 2nd figure (see examples)		E	
F	Changes size and shading of small figures		F	
G	Changes shape of 2nd figure		G	

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E

F

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Operator	Effect	Input	Process	Output
<div>O</div>	Changes size and shading of all figures		<div>O</div>	
<div>P</div>	Changes size and shading of 2nd figure		<div>P</div>	
<div>Q</div>	Changes small dark figures (see examples)		<div>Q</div>	
			<div>Q</div> <div>P</div>	

P O ?

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>Changes circles (see examples)</div> <div>Changes dark figures (see examples)</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>	<div>K</div> <div>L</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>

K

L

K

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Operator	Effect	Input	Process	Output
L	Changes size of 2nd figure		L	
M	Changes 3rd figure (see examples)		M	
N	Deletes 4th figure		N	

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M

L

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Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	<div>Deletes large dark triangles</div> <div>Deletes 4th figure</div>	<div></div>	<div><div>H</div><div>I</div></div>	<div><div></div><div></div></div>

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I

H

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- ☐



Operator	Effect	Input	Process	Output
B	Deletes 2nd figure		B	
C	Duplicates circles		C	
D	Changes size and shape of all figures		D	

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D

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- ☐



Operator	Effect	Input	Process	Output
D	Changes shading of triangles		D	
E	Swaps figures (see examples)		E	
F	Changes size of 1st figure		F	

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
V	Changes shading of all figures		V	
W	Changes shape of all figures		W	
X	Changes shading and shape of 4th figure		X	
Y	Changes light triangles (see examples)		Y	

? V Y V

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Operator	Effect	Input	Process	Output
I	Changes large circles (see examples)			
J	Changes 1st figure (see examples)			
K	Changes shape of all figures			

? J

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shape of all figures</div> <div>Changes shape of 1st figure</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>T</div> <div>U</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

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Difficulty: Very Easy (6)



Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	Changes 2nd figure (see examples)		<div>V</div>	
	Changes light triangles (see examples)		<div>W</div>	
			<div>W</div>	
			<div>W</div>	

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W

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Operator	Effect	Input	Process	Output
<div><div>L</div><div>M</div></div>	Swaps figures (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>L</div>	<div><div><div></div><div></div><div><div></div></div><div></div></div></div>
	Changes shading of all figures	<div><div><div></div><div></div></div></div>	<div>M</div>	<div><div><div><div></div></div><div></div></div></div>

M

L

M

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
E	Duplicates large figures		E	
F	Duplicates large light figures		F	
G	Changes shading of all figures		G	
			E	

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Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	Changes 2nd figure (see examples)		<div>T</div>	
	Changes light figures (see examples)		<div>U</div>	
			<div>U</div>	
			<div>T</div>	

U

T

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- ☐



Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Changes shading of all figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Deletes dark figures	<div><div><div></div><div></div><div></div></div></div>	<div>R</div>	<div><div><div></div></div></div>
		<div><div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div></div></div>

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Operator	Effect	Input	Process	Output
C	(see examples)		C	
D	Changes 1st figure (see examples)		D	
E	Changes shading and shape of small figures		E	
F	Deletes small dark circles		F	

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Operator	Effect	Input	Process	Output
<div><div>K</div><div>L</div></div>	<div>Changes 3rd figure (see examples)</div> <div>Changes 2nd figure (see examples)</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>K</div> <div>L</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

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L

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- ☐
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Difficulty: Very Easy (9)



Operator	Effect	Input	Process	Output
R	Duplicates 2nd figure		R	
S	Deletes large circles		S	
T	Deletes 1st figure		T	

? R S

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
N	Changes size and shading of large dark figures		N	
O	Duplicates small figures		O	
P	Changes 1st figure (see examples)		P	
Q	Changes 2nd figure (see examples)		Q	

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Operator	Effect	Input	Process	Output
R	Changes size and shading of 3rd figure		R	
S	Changes shading of light circles		S	
T	Changes small figures (see examples)		T U	
U	Changes 2nd figure (see examples)		U T	

? R

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Operator	Effect	Input	Process	Output
P	Swaps 3rd and 2nd figure		P	
Q	Changes size and shape of 1st figure		Q	
R	Deletes 1st figure		R	
S	Deletes 2nd figure		S	

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
R	Duplicates 1st figure		R	
S	Changes size of small dark circles		S	
T	Changes dark circles (see examples)		T U	
U	Changes shading of 1st figure		U T	

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U

S

U

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- ☐
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- ☐



Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div><div>I</div></div>	Changes shading of 3rd figure		<div>G</div>	
	Changes size and shading of all figures		<div>H</div>	
	Deletes large circles		<div>I</div>	

H

G

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Operator	Effect	Input	Process	Output
T	Duplicates circles			
U	Duplicates 2nd figure			
V	Changes shape of all figures			
W	Deletes 3rd figure			

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- ☐



Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	Changes 3rd figure (see examples)		M	
	Changes size and shading of 1st figure		N	
			M	
			N	

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M

N

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Operator	Effect	Input	Process	Output
S	Deletes large circles		S	
T	Changes shape of 1st figure		T	
U	Changes shading and shape of circles		U	

? U

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
C	Changes shading and shape of large triangles		C	
D	(see examples)		D	
E	Changes 4th figure (see examples)		E	

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C

D

- ☐
- ☐
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- ☐



Operator	Effect	Input	Process	Output
D	Deletes 1st figure		D	
E	Changes 3rd figure (see examples)		E	
F	Changes shape of all figures		F	
G	Changes size of all figures		G	

? G F

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- ☐



Operator	Effect	Input	Process	Output
<div>H</div>	Changes shading and shape of all figures		<div>H</div>	
<div>I</div>	Changes 1st figure (see examples)		<div>I</div>	
<div>J</div>	Changes shape of small circles		<div>J</div>	

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H

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Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Changes shape of all figures	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
	Deletes 3rd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div></div></div>

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Difficulty: Very Easy (8)



Operator	Effect	Input	Process	Output
S	Changes shading and shape of 2nd figure		S	
T	Deletes 2nd figure		T	
U	Duplicates 1st figure		U V	
V	Changes size of all figures		V U	

? U V

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
U	Changes small light figures (see examples)			
V	Deletes dark figures			
W	Changes shading and shape of 2nd figure			
X	Swaps 1st and 2nd figure			

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Deletes 3rd figure	<div><div></div><div></div><div></div><div></div></div>	<div>H</div>	<div><div></div><div></div><div></div></div>
	Changes shading and shape of 2nd figure	<div><div></div><div></div></div>	<div>I</div>	<div><div></div><div></div></div>

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I

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Operator	Effect	Input	Process	Output
F	Duplicates large figures		F	
G	Changes 1st figure (see examples)		G	

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G

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Operator	Effect	Input	Process	Output
<div>G</div>	Duplicates 2nd figure		<div>G</div>	
<div>H</div>	Changes 2nd figure (see examples)		<div>H</div>	
<div>I</div>	Changes size of all figures		<div>I</div>	
<div>J</div>	Changes shape of all figures		<div>J</div>	

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G

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Operator	Effect	Input	Process	Output
<div><div>R</div></div>	Changes 1st figure (see examples)		<div>R</div>	
<div>S</div>	Changes dark triangles (see examples)		<div>S</div>	
<div>T</div>	Changes light figures (see examples)		<div>T</div>	
			<div>S</div>	

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R

S

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Operator	Effect	Input	Process	Output
B	Changes 2nd figure (see examples)			
C	Duplicates 2nd figure			
D	Changes light figures (see examples)			
E	Swaps 1st and 3rd figure			

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
M	Duplicates 1st figure		M	
N	Changes size and shape of 1st figure		N	
O	Duplicates 2nd figure		O	
			ON	

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ON





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Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	Changes shading of large dark triangles Duplicates 2nd figure	<div><div><div></div><div></div></div></div>	<div><div>H</div><div>I</div></div>	<div><div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

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I

H

I

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Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	Changes shading of 1st figure Swaps figures (see examples)	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div>J</div> <div>K</div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

J

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Operator	Effect	Input	Process	Output
<div><div>H</div><div>I</div></div>	<div>Deletes small light triangles</div> <div>Changes size and shape of all figures</div>	<div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>	<div>H</div> <div>I</div>	<div><div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div>

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H

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Operator	Effect	Input	Process	Output
K	Changes size of all figures		K	
L	Duplicates small dark figures		L	
M	Changes shading and shape of 1st figure		M	
N	Deletes 1st figure		N	

 **M** **N** ?

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Operator	Effect	Input	Process	Output
C	Changes 2nd figure (see examples)		C	
D	Swaps 2nd and 1st figure		D	
E	Duplicates 1st figure		E F	
F	Deletes 2nd figure		F E	

D

C

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Operator	Effect	Input	Process	Output
I	Duplicates triangles		I	
J	Changes size of all figures		J	
K	Deletes small light figures		K	
			K J	

J

K

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- ☐



Operator	Effect	Input	Process	Output
<div><div>J</div><div>K</div></div>	Duplicates small circles	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div>J</div>	<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>
	Swaps figures (see examples)	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>	<div>K</div>	<div><div><div></div></div><div><div></div></div><div><div></div></div></div>

K

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Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div><div>F</div></div>	Deletes circles		<div>D</div>	
	Changes size and shape of dark figures		<div>E</div>	
	Deletes 2nd figure		<div>F</div>	
			<div>D</div>	Nothing

F

?

- ☐
- ☐
- ☐

✓
- ☐

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Operator	Effect	Input	Process	Output
H	Duplicates circles			
I	Changes shading and shape of triangles			
J	Changes triangles (see examples)			
K	Deletes large light triangles			

?

I

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Operator	Effect	Input	Process	Output
U	Changes shape of 1st figure		U	
V	Changes shape of all figures		V	
W	Duplicates dark figures		W X	
X	Changes size and shape of all figures		X W	

?

W V

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
V	Duplicates large dark figures		V	
W	Changes shading of dark circles		W	
X	Duplicates 3rd figure		X	
			X W	

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VX

- ☐

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div></div>	<div>Changes shading of all figures</div> <div>Changes size and shading of small light figures</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>	<div>T</div> <div>U</div> <div>U</div>	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div>

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T

U

T

- ☐
- ☐

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Operator	Effect	Input	Process	Output
S	Changes 2nd figure (see examples)			
T	Swaps figures (see examples)			
U	Changes shading and shape of circles			
V	Changes shading of triangles			

SVS?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
E	Duplicates 3rd figure		E	
F	Duplicates 2nd figure		F	
G	(see examples)	Nothing		Nothing
H	Changes size and shading of large circles		H G	

E F H ?

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- ☐
- ☒

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- ☐



Operator	Effect	Input	Process	Output
I	Changes shape of 2nd figure		I	
J	Changes 2nd figure (see examples)		J	
K	Changes shading and shape of 2nd figure		K	

JKI?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>D</div><div>E</div></div>	Changes shading and shape of all figures Changes 4th figure (see examples)	<div><div><div></div><div></div><div></div></div></div>	<div>D</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>E</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>E</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

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E

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- 🤖
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Operator	Effect	Input	Process	Output
R	Changes size of 3rd figure		R	
S	Duplicates small figures		S	
T	Changes shading of large dark figures		T	

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R

S

T

- ☐

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- ☐

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- ☐

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- ☐

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Operator	Effect	Input	Process	Output
K	Changes dark figures (see examples)		K	
L	(see examples)		L	
M	Swaps 1st and 2nd figure		M	
N	Deletes 1st figure		N	

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L

M

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
U	Duplicates 2nd figure		U	
V	Swaps figures (see examples)		V	
W	Changes shape of all figures		W	
X	Changes 2nd figure (see examples)		X	

? X

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
Q	Changes shape of 2nd figure		Q	
R	Deletes 4th figure		R	
S	Duplicates 2nd figure		S	
			S R	

QSR?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
E	Swaps 3rd and 1st figure		E	
F	Duplicates 3rd figure		F	
G	Deletes 1st figure		G	
H	Changes 4th figure (see examples)		H	

F

G

?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>O</div></div>	Deletes dark circles	<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>O</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>P</div></div>	Changes 3rd figure (see examples)	<div><div><div></div><div></div><div></div></div></div>	<div><div>P</div></div>	<div><div><div></div><div></div><div></div></div></div>
<div><div>Q</div></div>	Deletes small triangles	<div><div><div></div><div></div></div></div>	<div><div>Q</div></div>	<div><div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div><div>P</div></div>	<div><div><div></div><div></div><div></div><div></div></div></div>

Q

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Operator	Effect	Input	Process	Output
<div>D</div>	Duplicates 3rd figure		<div>D</div>	
<div>E</div>	Changes shape of light figures		<div>E</div>	
			<div>D</div>	
			<div>D</div>	

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E

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Operator	Effect	Input	Process	Output
I	Changes shading and shape of 1st figure		I	
J	Changes 4th figure (see examples)		J	
K	Duplicates large figures		K	
L	Changes size and shape of 3rd figure		L	

K

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- ☐



Operator	Effect	Input	Process	Output
	Changes shading and shape of 1st figure			
	Changes light circles (see examples)			

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I

H

I

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- ☐
- ☐
- ☐



Operator	Effect
<div><div>P</div><div>Q</div></div>	Swaps 1st and 2nd figure
	Changes size of 2nd figure

Input	Process	Output
	<div>P</div>	
	<div>Q</div>	
	<div>Q</div>	

?

Q

P

Q

- ☐
- ☐
- ☐
- ☐





Operator	Effect
B	Changes 1st figure (see examples)
C	Changes shading and shape of 1st figure
D	Deletes 4th figure
E	Deletes large triangles

Input	Process	Output
	B	
	C	

?

C

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Operator	Effect	Input	Process	Output
I	Changes 2nd figure (see examples)		I	
J	Changes 3rd figure (see examples)		J	
K	(see examples)		K	
L	Duplicates 3rd figure		L	

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K

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- ☐



Operator	Effect	Input	Process	Output
F	Changes circles (see examples)		F	
G	Changes shading of all figures		G	
H	Swaps 3rd and 1st figure		H I	
I	Changes 2nd figure (see examples)		I H	

? H

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Changes 3rd figure (see examples)		M	
N	Changes 2nd figure (see examples)		N	
O	Changes size of 1st figure		O	
P	Deletes large triangles		P	

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Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Changes shading of large triangles	<div><div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div></div></div>
	Changes 3rd figure (see examples)	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>R</div>	<div><div><div></div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>R</div>	<div><div><div></div><div></div><div></div><div></div></div></div>

Q

R

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Operator	Effect	Input	Process	Output
D	Deletes 2nd figure		D	
E	Deletes circles		E	
F	Changes shape of large dark triangles		F	

? D E D

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
M	Deletes small dark figures		M	
N	Changes shading and shape of light figures		N	
O	Changes shading and shape of 2nd figure		O	

NM?

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- ☐



Operator	Effect	Input	Process	Output
U	Deletes 1st figure		U	
V	Changes large light figures (see examples)		V	
W	Deletes 2nd figure		W	
X	Changes 1st figure (see examples)		X	

? V

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Operator	Effect
	Deletes 1st figure
	Changes size and shading of triangles

Input	Process	Output

?

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- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div>C</div>	Duplicates 3rd figure	<div><div></div><div></div><div></div></div>	<div>C</div>	<div><div></div><div></div><div></div><div></div></div>
<div>D</div>	Duplicates 1st figure	<div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	<div>D</div>	<div><div></div><div></div><div></div><div></div></div>

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D

C

D

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Operator	Effect	Input	Process	Output
S	Changes shape of light figures		S	
T	Changes 1st figure (see examples)		T	
U	Changes shading of 3rd figure		U	
			UT	

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S

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Operator	Effect	Input	Process	Output
<div><div>A</div><div>B</div></div>	<div>Swaps figures (see examples)</div> <div>Changes dark figures (see examples)</div>	<div></div> <div></div>	<div>A</div> <div>B</div>	<div></div> <div></div>

A

B

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div><div>T</div><div>U</div><div>V</div></div>	Duplicates 2nd figure	<div></div>	<div>T</div>	<div></div>
	Changes large figures (see examples)	<div></div>	<div>U</div>	<div></div>
	Changes shading of all figures	<div></div>	<div>V</div>	<div></div>
		<div></div>	<div>V U</div>	<div></div>

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U

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Operator	Effect	Input	Process	Output
R	Changes 3rd figure (see examples)		R	
S	Duplicates dark figures		S	
T	Changes size of circles		T	
U	Duplicates 1st figure		U	

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>E</div><div>F</div></div>	<div>Changes size and shading of all figures</div> <div>Changes size of 2nd figure</div>	<div></div> <div></div> <div></div>	<div>E</div> <div>F</div> <div>E</div>	<div></div> <div></div> <div></div>

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F



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Difficulty: Intermediate (11)



Operator	Effect	Input	Process	Output
B	Changes size and shape of all figures		B	
C	Changes size and shape of 2nd figure		C	
D	Deletes small circles			
E	Changes 4th figure (see examples)			

B ?

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
K	Duplicates 4th figure		K	
L	Deletes small light figures		L	
M	Changes size and shading of all figures		M N	
N	Duplicates 1st figure		N M	

? L N

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	<div>Changes dark figures (see examples)</div> <div>Changes size and shading of 1st figure</div>	<div></div> <div></div>	<div><div>B</div><div>C</div></div>	<div></div> <div></div>

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B

C

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Changes shading of all figures		<div>S</div>	
<div>T</div>	Deletes 4th figure		<div>T</div>	
<div>U</div>	Changes size and shading of large light circles		<div>U</div>	
			<div>T</div>	

T

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- ☐
- ☐

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- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Swaps 3rd and 1st figure	<div><div></div><div></div><div></div><div></div></div>	<div>S</div>	<div><div></div><div></div><div></div><div></div></div>
<div>T</div>	Changes shape of 2nd figure	<div><div></div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div><div></div></div>

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Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div><div>S</div></div>	<div>Duplicates small figures</div> <div>Changes shape of all figures</div> <div>Duplicates small dark figures</div>	<div></div> <div></div> <div></div>	<div>Q</div> <div>R</div> <div>S</div>	<div></div> <div></div> <div></div>

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S

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Operator	Effect	Input	Process	Output
<div><div>F</div><div>G</div></div>	Changes 3rd figure (see examples)		<div>F</div>	
	Changes 2nd figure (see examples)		<div>G</div>	
			<div>F</div>	

F

G

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Operator	Effect	Input	Process	Output
<div>S</div>	Duplicates 2nd figure	<div><div></div><div></div><div></div></div>	<div>S</div>	<div><div></div><div></div><div></div></div>
<div>T</div>	Swaps figures (see examples)	<div><div></div><div></div><div></div></div>	<div>T</div>	<div><div></div><div></div><div></div></div>
<div>U</div>	Changes size and shading of all figures	<div><div></div><div></div><div></div></div>	<div>U</div>	<div><div></div><div></div><div></div></div>
		<div><div></div><div></div><div></div></div>	<div>U T</div>	<div><div></div><div></div><div></div></div>

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U

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Operator	Effect
J	Deletes small light figures
K	Deletes 2nd figure
L	Deletes 3rd figure
M	Changes shape of light figures

Input	Process	Output
	J	
	K	

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J

M

- ☐
- ☐
- ☐
- ☐

Difficulty: Intermediate (12)



Operator	Effect	Input	Process	Output
M	Changes 2nd figure (see examples)			
N	Changes shape of all figures			
O	Changes shape of dark triangles			
P	Deletes 2nd figure			

?

O

N

M

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Swaps figures (see examples)		<div>S</div>	
<div>T</div>	Swaps 2nd and 4th figure		<div>T</div>	
			<div>S</div>	

T

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- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Swaps figures (see examples)	<div><div></div><div></div></div>	<div>P</div>	<div><div></div><div></div></div>
	Changes shape of all figures	<div><div></div><div></div><div></div></div>	<div>Q</div>	<div><div></div><div></div><div></div></div>

?

P

Q

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Operator	Effect	Input	Process	Output
C	Changes 4th figure (see examples)		C	
D	Changes shape of all figures		D	
E	Changes shading of 1st figure		E	
			C	

?

E

C

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	Changes size of 2nd figure Deletes 1st figure	<div><div><div></div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div><div></div><div></div></div></div>	<div>Q</div>	<div><div><div></div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>P</div>	<div><div><div></div><div></div></div></div>

Q

P

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tor	Effect	Input	Process	Output
<div></div>	Duplicates large light figures	<div></div>	M	<div></div>
	Changes shading and shape of all figures	<div></div>	N	<div></div>
	Deletes 3rd figure	<div></div>	O	<div></div>
		<div></div>	O	<div></div>

? N O

- ☐
- ☐
- ☐
- ☐



Operator	Effect
U	Changes size and shading of 2nd figure
V	Changes size and shape of small figures
W	Changes shading of all figures

Input	Process	Output
	U	
	V	
	W	

VW?

- ☐
- ☐
- ☐
- ☐





Operator	Effect	Input	Process	Output
<div><div>Q</div><div>R</div></div>	Duplicates 1st figure		<div>Q</div>	
	Duplicates light figures		<div>R</div>	
			<div>R</div>	

?

R

Q

- ☐
- ☐

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- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>V</div><div>W</div></div>	<div>Changes shading and shape of all figures</div> <div>Changes 2nd figure (see examples)</div>	<div></div> <div></div> <div></div> <div></div>	<div>V</div> <div>W</div> <div>V</div> <div>W</div>	<div></div> <div></div> <div></div> <div></div>

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V

- ☐

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- ☐

🤖
- ☐
- ☐



Operator	Effect
<div><div>R</div><div>S</div></div>	Changes shading of 1st figure Changes dark figures (see examples)

Input	Process	Output
<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	<div><div>R</div><div>S</div></div>	<div><div><div></div><div></div></div><div><div></div><div></div></div></div>

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R

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Difficulty: Very Easy (6)



Operator	Effect	Input	Process	Output
E	Changes 1st figure (see examples)		E	
F	Duplicates large light triangles		F	
G	Changes size and shape of 1st figure		G	

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G

F

- ☐
- ☐

✓

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- ☐
- ☐



Operator	Effect	Input	Process	Output
H	Changes large dark figures (see examples)		H	
I	Duplicates 2nd figure		I	
J	Changes size and shading of all figures		J	
K	Changes shape of all figures		K	

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KJ I

- ☐

✓
- ☐

🤖
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>M</div><div>N</div></div>	<div>Changes light figures (see examples)</div> <div>Changes size and shape of 4th figure</div>	<div></div> <div></div>	<div>M</div> <div>N</div>	<div></div> <div></div>

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N

M

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☒
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>R</div></div>	Changes size of all figures		<div><div>R</div></div>	
<div><div>S</div></div>	Changes shading of large figures		<div><div>S</div></div>	
<div><div>T</div></div>	Deletes 3rd figure		<div><div>T</div></div>	
			<div><div>T</div><div>S</div></div>	

T

S

R

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- ☐
- ☐
- ☒
- ☐



Operator	Effect	Input	Process	Output
<div><div>R</div><div>S</div></div>	Changes shading and shape of 2nd figure	<div></div>	<div>R</div>	<div></div>
	Duplicates 3rd figure	<div></div>	<div>S</div>	<div></div>
		<div></div>	<div>R</div>	<div></div>

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S

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
S	Swaps 1st and 2nd figure		S	
T	Changes size and shape of large figures		T	
U	Changes 2nd figure (see examples)		U	
			U T	

? U T

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- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>U</div><div>V</div></div>	<div>Changes large circles (see examples)</div> <div>Swaps figures (see examples)</div>	<div></div> <div></div>	<div><div>U</div><div>V</div></div>	<div></div> <div></div>

V

U

V

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- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div>S</div>	Changes size of all figures		<div>S</div>	
<div>T</div>	Duplicates small figures		<div>T</div>	
			<div>T</div>	

?

S

T

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- ☐

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- ☐



Operator	Effect	Input	Process	Output
Q	Duplicates small light triangles		Q	
R	Changes large dark figures (see examples)		R	
S	Duplicates circles		S	

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Q

S

- ☐
- ☐
- ☐
- ☐



Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	<div>Changes shading and shape of 1st figure</div> <div>Changes shading and shape of small light triangles</div>	<div></div> <div></div>	<div><div>B</div></div> <div><div>C</div></div>	<div></div> <div></div>

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C

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- ☐



Operator	Effect	Input	Process	Output
<div>K</div>	Deletes 2nd figure		<div>K</div>	
<div>L</div>	Swaps 3rd and 2nd figure		<div>L</div>	
<div>M</div>	Duplicates 1st figure		<div>M</div>	

M

K

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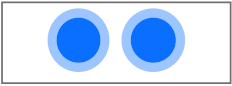


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Operator	Effect	Input	Process	Output
V	Changes shading of all figures		V	
W	Changes size and shading of all figures		W	
X	Changes dark figures (see examples)		X Y	
Y	Swaps 2nd and 1st figure		Y X	

 **W V W** ?

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Operator	Effect	Input	Process	Output
<div>H</div>	Deletes 1st figure	<div><div>▲●▲▲</div></div>	<div>H</div>	<div><div>●▲▲</div></div>
<div>I</div>	Deletes small dark figures	<div><div>●●●</div></div>	<div>I</div>	<div><div>●</div></div>

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Operator	Effect	Input	Process	Output
<div>F</div>	Deletes 2nd figure	<div><div><div></div><div></div><div></div><div></div></div></div>	<div>F</div>	<div><div><div></div><div></div><div></div></div></div>
<div>G</div>	Changes 2nd figure (see examples)	<div><div><div></div><div></div></div></div>	<div>G</div>	<div><div><div></div><div></div></div></div>
		<div><div><div></div><div></div></div></div>	<div>G</div>	<div><div><div></div><div></div></div></div>

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F

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Operator	Effect	Input	Process	Output
Q	Changes size and shading of all figures		Q	
R	Changes shape of dark figures		R	
S	Changes 3rd figure (see examples)		S T	
T	Changes large triangles (see examples)			

R ?

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>Swaps 1st and 2nd figure</div> <div>Changes shading and shape of 2nd figure</div>	<div></div> <div></div>	<div>G</div> <div>H</div>	<div></div> <div></div>

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Operator	Effect
<div><div>T</div></div>	Duplicates 2nd figure
<div><div>U</div></div>	Deletes small figures

Input	Process	Output
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div></div>	<div><div>T</div></div>	<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div></div>
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div></div>	<div><div>U</div></div>	<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div></div>
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div></div>	<div><div>U</div></div>	<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div></div>
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div></div>	<div><div>T</div></div>	<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div></div>

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Operator	Effect	Input	Process	Output
Q	Duplicates 4th figure		Q	
R	(see examples)		R	
S	Duplicates light circles		S	
			Q	

R ?

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Operator	Effect	Input	Process	Output
<div>M</div>	Swaps figures (see examples)		<div>M</div>	
<div>N</div>	Changes 3rd figure (see examples)		<div>N</div>	
			<div>M</div>	

N

M

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	<div>Changes size of 2nd figure</div> <div>Changes shading and shape of all figures</div>	<div></div> <div></div> <div></div>	<div>S</div> <div>T</div> <div>T</div>	<div></div> <div></div> <div></div>

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S

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S

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Operator	Effect	Input	Process	Output
M	Swaps figures (see examples)		M	
N	Changes 1st figure (see examples)		N	
O	Duplicates 1st figure		O P	
P	Deletes 2nd figure		P O	

N ?

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- ☐
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Operator	Effect	Input	Process	Output
F	Changes shading and shape of small light figures		F	
G	Changes 3rd figure (see examples)		G	
H	Changes size of small figures		H	
			H G	

? H G

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Operator	Effect	Input	Process	Output
<div>H</div>	Changes shading of all figures		<div>H</div>	
<div>I</div>	Changes shape of all figures		<div>I</div>	
<div>J</div>	Changes size and shape of 1st figure		<div>J</div>	
<div>K</div>	Duplicates light figures		<div>K</div>	

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Operator	Effect	Input	Process	Output
C	Deletes 1st figure		C	
D	Changes small figures (see examples)		D	
E	Deletes 3rd figure		E	
F	Changes size of all figures		F	

 **F** **D** ?

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Operator	Effect	Input	Process	Output
L	Changes shading of 3rd figure			
M	Duplicates 2nd figure			
N	Deletes 1st figure			
O	Changes shading of 4th figure			

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Operator	Effect	Input	Process	Output
<div><div>B</div><div>C</div></div>	<div>Deletes 2nd figure</div> <div>Changes size of 3rd figure</div>	<div></div> <div></div>	<div>B</div> <div>C</div>	<div></div> <div></div>

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B

C

B

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Operator	Effect	Input	Process	Output
U	Duplicates 1st figure		U	
V	(see examples)		V	
W	Changes shape of 1st figure		W	
			W V	

W V ?

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Operator	Effect	Input	Process	Output
<div><div>C</div><div>D</div></div>	Changes 4th figure (see examples)		C	
	Changes dark figures (see examples)		D	
			C	
			C	

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Operator	Effect	Input	Process	Output
C	Deletes 2nd figure		C	
D	Changes shape of all figures		D	
E	Swaps figures (see examples)		E F	
F	Changes small figures (see examples)		F E	

 **D** ?

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Operator	Effect	Input	Process	Output
J	Duplicates 4th figure		J	
K	Changes shading and shape of all figures		K	
L	Changes size and shape of 2nd figure		L	
			L K	

J ?

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- ☐





Operator	Effect
B	Changes size and shape of 2nd figure
C	Deletes 1st figure
D	Changes 1st figure (see examples)
E	Changes 2nd figure (see examples)

Input	Process	Output
	B	
	C	
	D	
	E	

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Operator	Effect	Input	Process	Output
<div>H</div>	Deletes 3rd figure		<div>H</div>	
<div>I</div>	Duplicates 1st figure		<div>I</div>	
<div>J</div>	Duplicates 3rd figure		<div>J</div>	
			<div>J</div> <div>I</div>	

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	Changes 4th figure (see examples)		<div>G</div>	
	Changes shading of all figures		<div>H</div>	
			<div>H</div>	

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Operator	Effect	Input	Process	Output
<div>K</div>	Changes 3rd figure (see examples)		<div>K</div>	
<div>L</div>	Deletes circles		<div>L</div>	
<div>M</div>	Changes shading of all figures		<div>M</div>	

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K

M

K

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Operator	Effect	Input	Process	Output
E	Changes size of 1st figure		E	
F	Deletes 1st figure		F	
G	Changes 2nd figure (see examples)		G	
H	Deletes 2nd figure		H	

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G

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Operator	Effect	Input	Process	Output
P	Changes shading and shape of 2nd figure		P	
Q	Changes size and shading of 1st figure		Q	
R	Deletes small triangles		R	

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Q

P

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Operator	Effect	Input	Process	Output
<div><div>G</div><div>H</div></div>	<div>(see examples)</div> <div>Changes 2nd figure (see examples)</div>	<div><div>▲●▲</div><div>▲▲</div></div>	<div><div>G</div><div>H</div></div>	<div><div>▲▲●</div><div>▲▲</div></div>

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Operator	Effect	Input	Process	Output
<div><div>S</div><div>T</div></div>	<div>Changes size of all figures</div> <div>Changes 1st figure (see examples)</div>	<div></div> <div></div>	<div>S</div> <div>T</div>	<div></div> <div></div>

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S

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Operator	Effect	Input	Process	Output
<div><div>P</div><div>Q</div></div>	<div>Changes shading and shape of dark circles</div> <div>Swaps 2nd and 1st figure</div>	<div></div> <div></div>	<div>P</div> <div>Q</div>	<div></div> <div></div>

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Q

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Q

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Operator	Effect	Input	Process	Output
U	Changes shading and shape of 3rd figure		U	
V	Changes size and shading of all figures		V	
W	Changes shading of all figures		W X	
X	Changes size and shape of all figures		X W	

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Operator	Effect	Input	Process	Output
J	Duplicates dark figures		J	
K	Changes small dark figures (see examples)		K	
L	Changes shading of all figures		L	
M	Duplicates small light circles		M	

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K

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Operator	Effect	Input	Process	Output
U	Changes size and shading of all figures		U	
V	Duplicates 2nd figure		V	
W	Changes shading of 2nd figure		W	
			W V	

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VU

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Operator	Effect
<div><div>I</div><div>J</div></div>	Deletes 1st figure
	Changes shading of 2nd figure

Input	Process	Output
<div><div></div><div></div></div>	<div>I</div>	<div></div>
<div><div></div><div></div></div>	<div>J</div>	<div><div></div><div></div></div>

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J

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Operator	Effect	Input	Process	Output
K	Changes 2nd figure (see examples)		K	
L	Changes shading and shape of all figures		L	
M	Swaps figures (see examples)		M	
			M L	

L M L ?

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