Name Key

8R Math

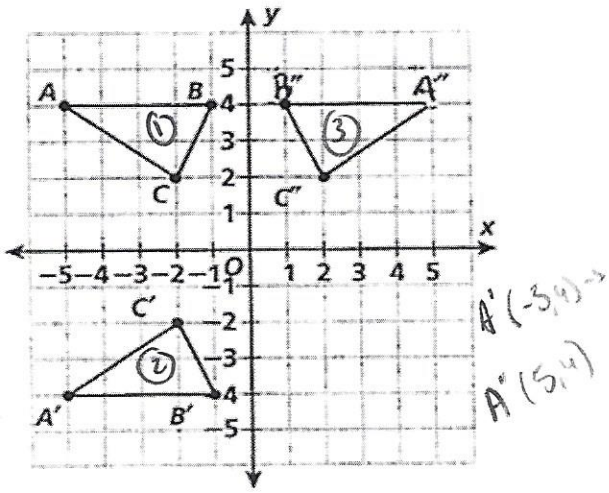
Date _____

Period _____

Identifying Sequences of Transformations

Directions: Identify the sequence of transformations from the original to the final image. Tell whether the two figures are similar (non-rigid) or congruent (rigid).

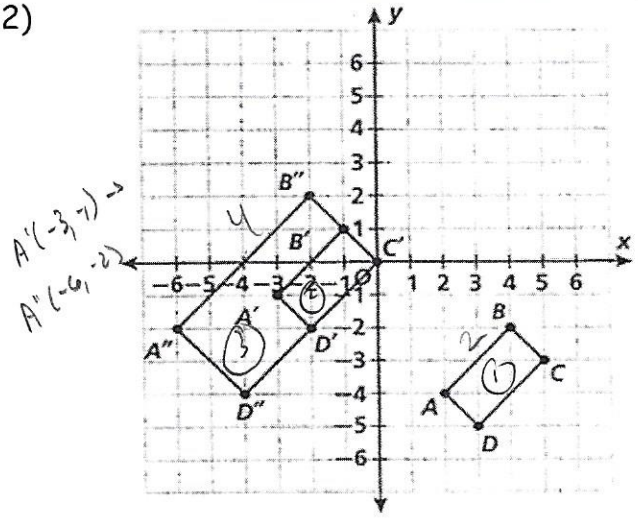
1)



1. Reflection over the x-axis
2. Rotation of 180° (or Reflection over the origin)

Circle: similar (non-rigid) or congruent (rigid)

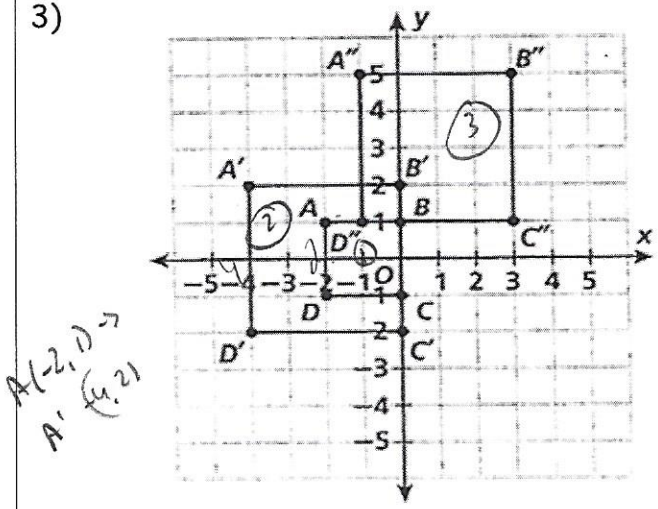
2)



1. Translation 5 units left + 3 units up
2. Dilation by a scale factor of 2

Circle: similar (non-rigid) or congruent (rigid)

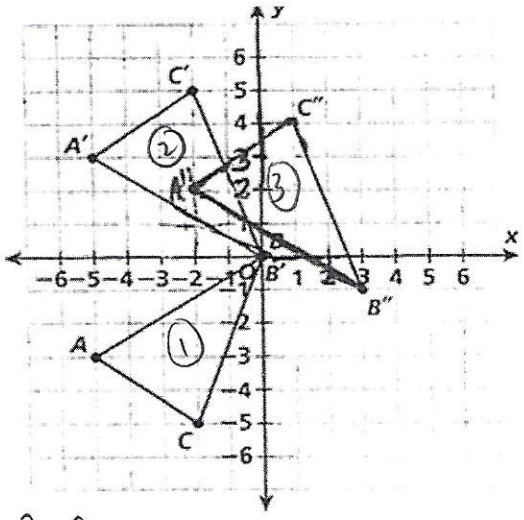
3)



1. Dilation by a scale factor of 2
2. Translation 3 units right & 3 units up

Circle: similar (non-rigid) or congruent (rigid)

4)



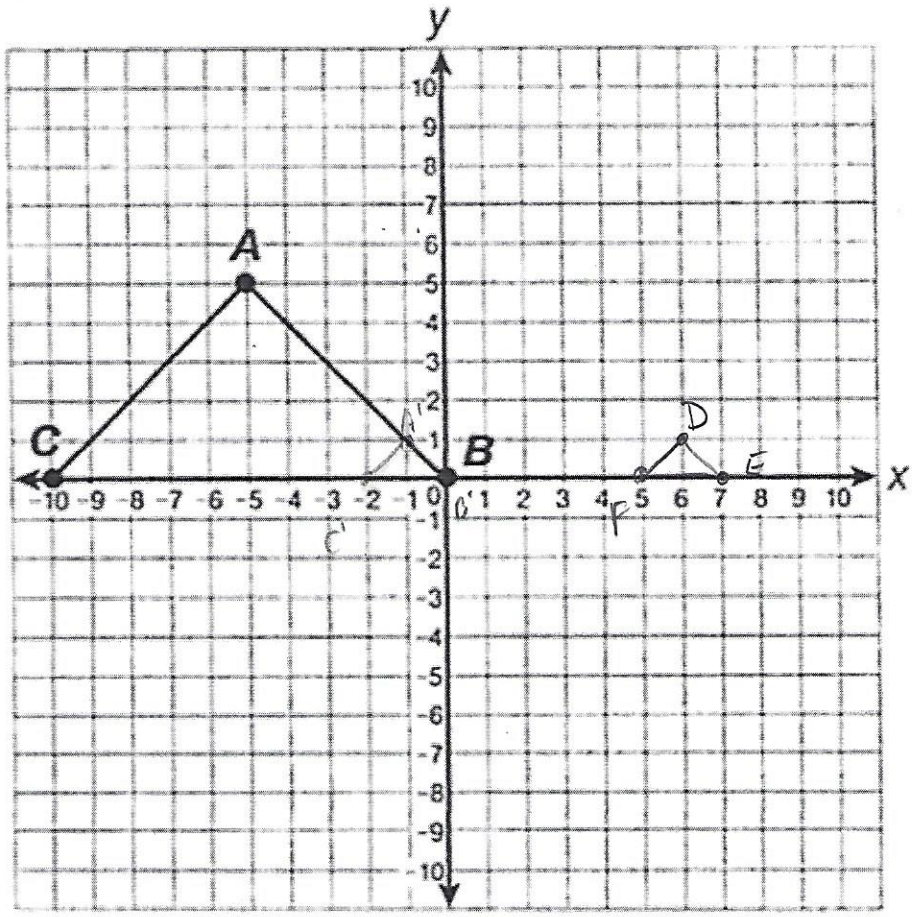
1. Reflection over the x-axis
2. Translation 3 units right & 1 unit down

Circle: similar (non-rigid) or congruent (rigid)

Directions: Draw a similar figure based on the given sequence of transformations. State the coordinates of the original and image.

5) Draw similar ΔDEF by dilating ΔABC by $\frac{1}{5}$ (multiply by $\frac{1}{5}$) and then translating the resulting image 7 units to the right.

ΔABC	ΔA'B'C'	ΔDEF
A(−5, 5) · $\frac{1}{5}$	A'(−1, 1)	D(6, 1)
B(0, 0) · $\frac{1}{5}$	B'(0, 0)	E(7, 0)
C(−10, 0) · $\frac{1}{5}$	C'(−2, 0)	F(5, 0)

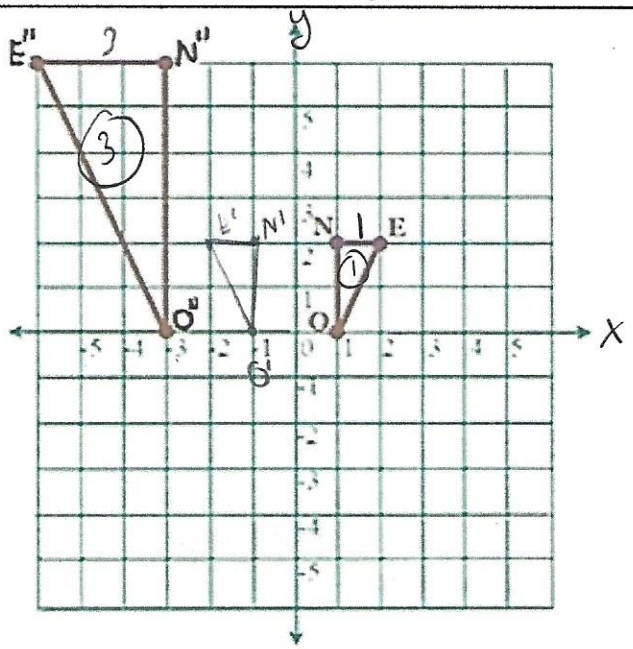


congruent similar

Directions: Describe a sequence of rigid and non-rigid motions that could be used to show that each pair of figures is similar. For each problem, assume that ΔONE is the original and ΔO"N"E" is the image.

6) 1. Reflection over the y-axis

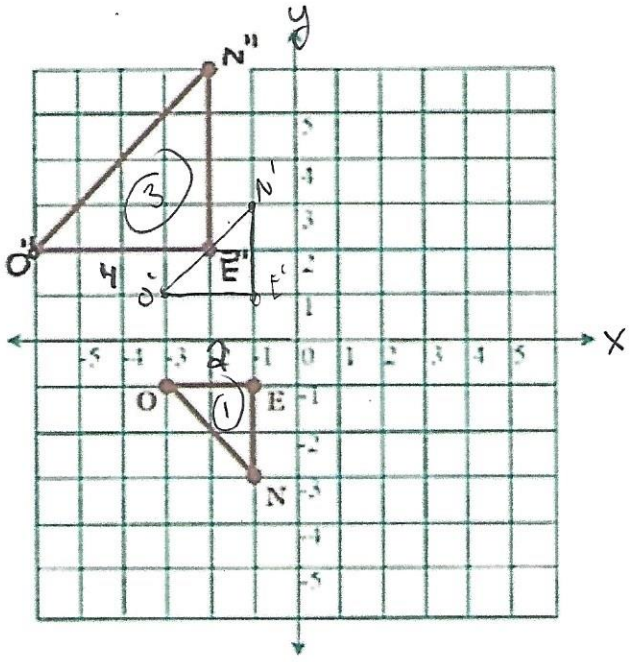
2. Dilated by a scale factor of 3



Circle: similar (non-rigid)
or congruent (rigid)

7) 1. Reflected over the X-axis

2. Dilated by a scale factor of 2

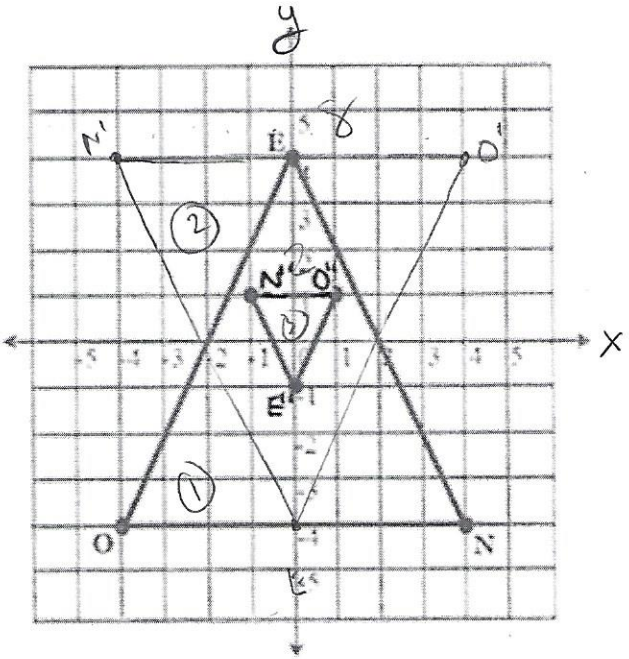


Circle: similar (non-rigid)
or congruent (rigid)

8) 1. Rotated 180° (Reflection over the origin)

2. Dilated by a scale factor of $\frac{1}{4}$

Circle: similar (non-rigid)
or congruent (rigid)



$8 \to 2$

$8\left(\frac{1}{4}\right) = 2$

$O'(4,4)$

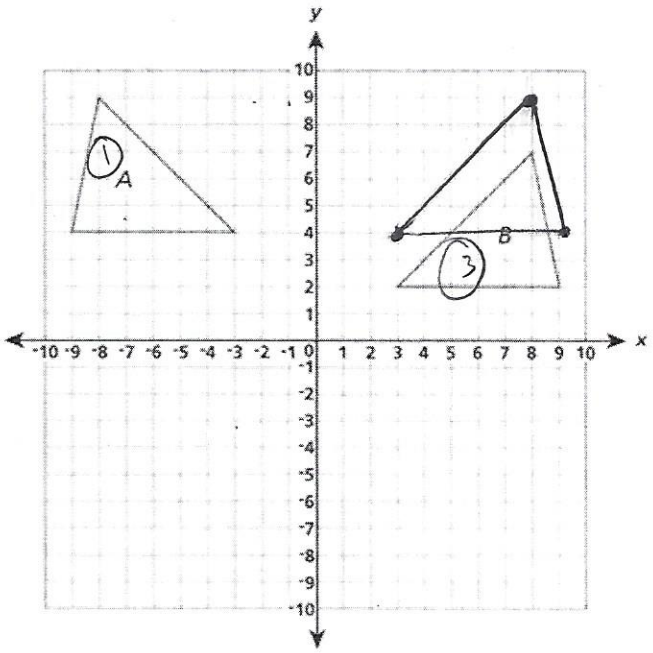
$N'(-4,4)$

$E'(0,-4)$

$E(0,4) \to E'(0,-4)$

$N'(-4,4) \to N''(-1,1)$

9) Which sequence of transformations takes ΔA to its image, ΔB?



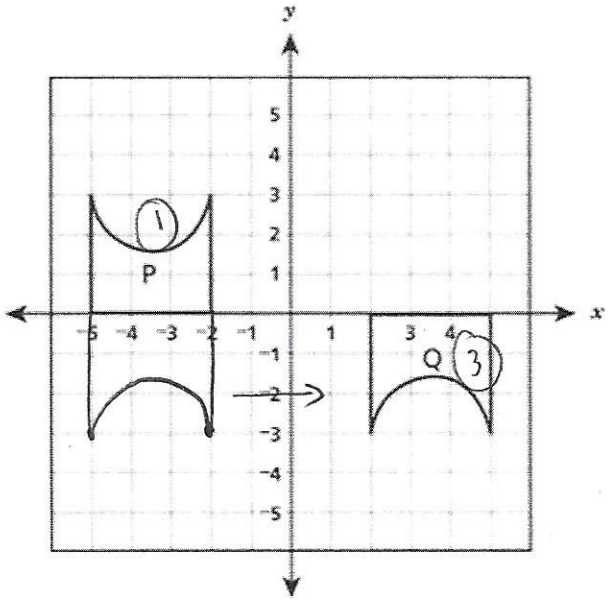
a. Reflection over the x-axis and translation 2 units down.

b. Reflection over the y-axis and translation 2 units down.

c. Translation 2 units down and 90° rotation about the origin.

d. Translation 12 units right and 90° rotation about the origin.

10) Figure Q was the result of a sequence of transformations on figure P, both shown below.



Which sequence of transformations could take figure P to figure Q?

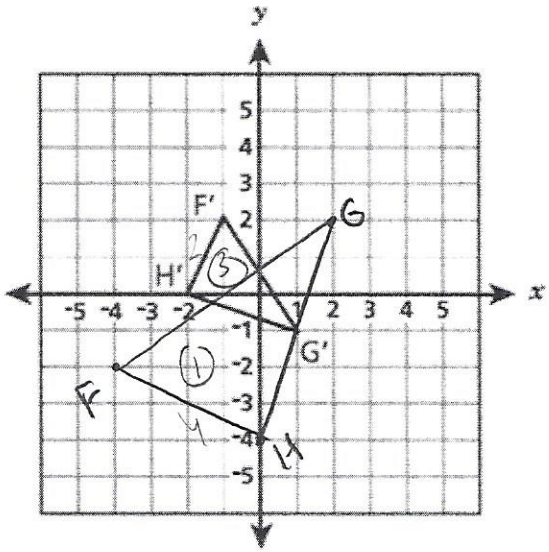
a. Reflection over the x-axis and translation 7 units right.

b. Reflection over the y-axis and translation 3 units down.

c. Translation 1 units right and 180° rotation about the origin.

d. Translation 4 units right and 180° rotation about the origin.

11) The vertices of a triangle are located at F(-4, -2), G(2, 2), and H(0, -4). A sequence of transformations to triangle FGH results in triangle F'G'H' as shown below.



Which sequence of transformations to triangle FGH results in triangle F'G'H'?

a. A 90° clockwise rotation about the origin, then a dilation by a scale factor of 2.

b. A 90° counterclockwise rotation about the origin, then a dilation by a scale factor of 2.

c. A 90° counterclockwise rotation about the origin, then a dilation by a scale factor of $\frac{1}{2}$.

d. A 90° clockwise rotation about the origin, then a dilation by a scale factor of $\frac{1}{2}$.