

Directions: Using the rule provided, describe the transformation or sequence of transformations that have occurred.

1) $(x, y) \rightarrow (y, x + 2)$

2) $(x, y) \rightarrow (-y, -x)$

3) $(x, y) \rightarrow (-x, 3y)$

4) $(x, y) \rightarrow (-y, x)$

2 answers possible:

① Reflect over $y=x$; then up 2.

② Right 2; then reflect over $y=x$.

Reflect over $y=-x$

2 answers possible:

① Reflect over y -axis; then vertical stretch by 3

② Vertical str. by 3; then ref. over y -axis

90° CCW rotation

Directions: Write the rule to represent the transformation.

5) Rotate 180° CW about the origin

$(x, y) \rightarrow (-x, -y)$

6) Horizontal stretch of 10

$(x, y) \rightarrow (10x, y)$

7) Translate 4 units left and 8 units up

$(x, y) \rightarrow (x - 4, y + 8)$

8) Reflect over $y = x$

$(x, y) \rightarrow (y, x)$

9) Rotate 270° CCW about the origin

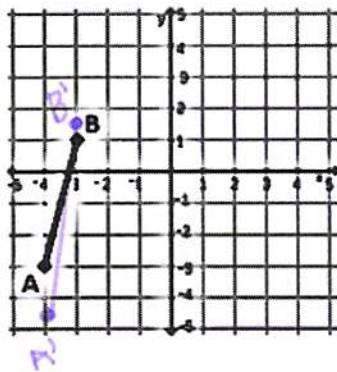
$(x, y) \rightarrow (y, -x)$

10) Dilate by a scale factor of $\frac{1}{3}$

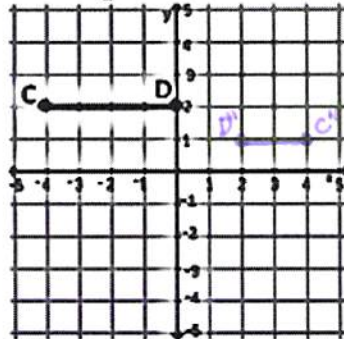
$(x, y) \rightarrow (\frac{1}{3}x, \frac{1}{3}y)$

Directions: Graph the transformation using the given information.

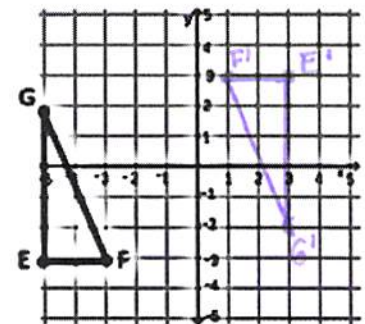
11) $(x, y) \rightarrow (x, 1.5y)$



12) Dilate by $\frac{1}{2}$; then, reflect over $x = 1$



13) Rotate 180° CW about $(-1, 0)$



Directions: Solve each problem.

14) If $Z(3, -4)$, what is Z'' after it has been rotated 180° CW and then vertically stretched by 5?

$Z''(-3, 20)$

15) If $R'(0, 5)$, what is R if the following rule was used to produce the image: $(x, y) \rightarrow (-y, -x)$?

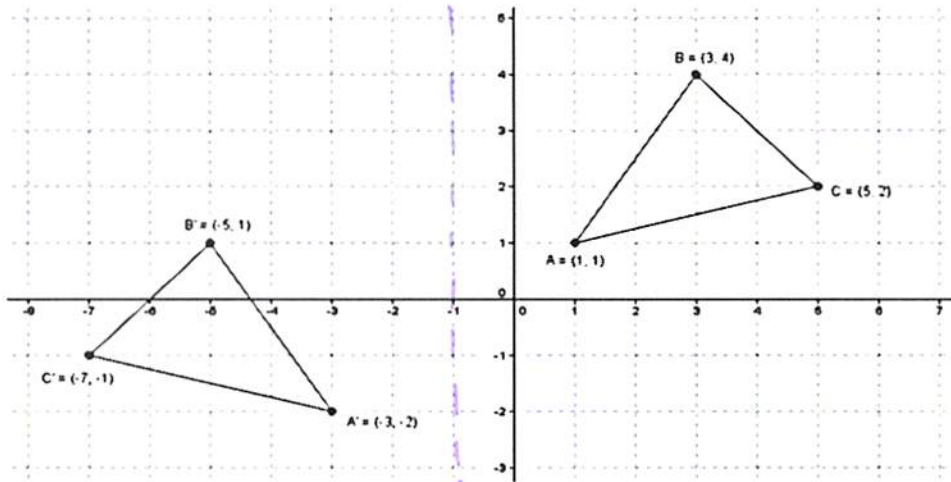
$R(-5, 0)$

16) If $J(3, 1)$ is reflected over $y = x$, dilated by 3 with a center at $(1, 2)$, and then rotated 90° CCW, what is J''' ?

$J'''(-5, 1)$

Directions: Describe the sequence of transformations.

17)

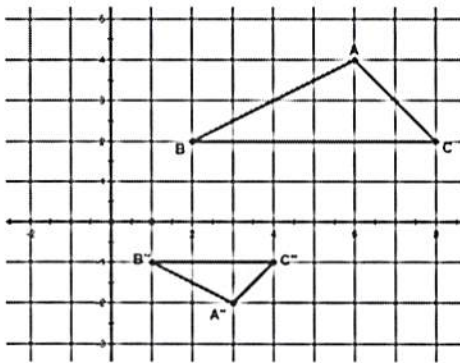


Answers may vary!

One example:
 ① Reflect over $x = -1$
 ② Translate 3 down

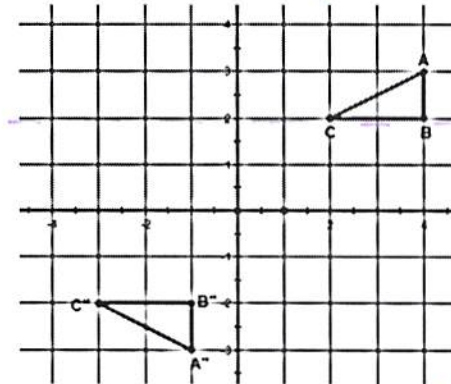
Directions: Determine how to map the pre-image onto the image. Answers may vary!

18)



EX: Dilate by $\frac{1}{2}$; then, reflect over x -axis

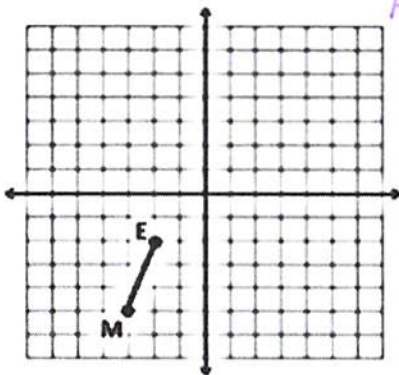
19)



EX: Reflect over $y = 2$; then, translate 5 left & 4 down.

Directions: Determine how to map the pre-image onto itself using the given number of transformations.

Answers may vary!



20) 1 transformation

EX: Rotate 360° CW

21) 2 transformations

EX: Rotate 90° CW; then, rotate 270° CW.

22) 3 transformations

EX: Dilate by $\frac{1}{2}$ with a center at $(0, 0)$; then, rotate 180° ; then, rotate 180° .