

Transformations

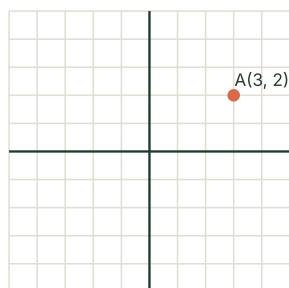
HSG.CO.A.2

HSG.CO.A.5

Name _____ Date _____

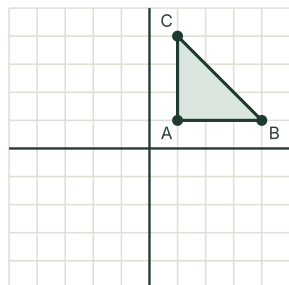
Give image coordinates or name the transformation. On the coordinate plane: reflect over the x -axis $(x, y) \rightarrow (x, -y)$, over the y -axis $(x, y) \rightarrow (-x, y)$, over $y = x$ $(x, y) \rightarrow (y, x)$. Rotate about the origin 90° CCW $(x, y) \rightarrow (-y, x)$, 180° $(x, y) \rightarrow (-x, -y)$, 90° CW $(x, y) \rightarrow (y, -x)$. Dilate from the origin by multiplying each coordinate by the scale factor.

1. The point $(2, 5)$ is translated 3 units right and 4 units down. Give the coordinates of the image.
2. Point $A(3, 2)$ is reflected over the x -axis. Give the coordinates of the image A' .



3. Point $B(-2, 4)$ is reflected over the y -axis. Give the coordinates of the image B' .
4. Point $C(4, 1)$ is reflected over the line $y = x$. Give the coordinates of the image C' .
5. Point $D(2, 3)$ is rotated 90° counterclockwise about the origin. Give the coordinates of the image D' .
6. Point $E(-3, 1)$ is rotated 180° about the origin. Give the coordinates of the image E' .
7. Point $F(5, 2)$ is rotated 90° clockwise about the origin. Give the coordinates of the image F' .
8. Point $G(2, -3)$ is dilated from the origin by a scale factor of 2. Give the coordinates of the image G' .

9. Triangle ABC with $A(1, 1)$, $B(4, 1)$, $C(1, 4)$ is reflected over the x -axis. Give the coordinates of A' , B' , and C' .



10. A figure is moved so that point $P(3, 4)$ maps to $P'(-3, 4)$ and every other point follows the same rule. Name the single transformation.
11. Triangle with vertices $(1, 2)$, $(2, 1)$, and $(1, -1)$ is dilated from the origin by a scale factor of 3. Give the coordinates of the three image vertices.
12. Which transformation does **not** always produce an image congruent to the original figure?

A) Translation

B) Reflection

C) Rotation

D) Dilation with scale factor 2
13. A transformation sends every point (x, y) to $(-y, x)$. Triangle JKL has vertices $J(1, 0)$, $K(4, 0)$, $L(4, 3)$. Name the transformation and give L' .
14. Point $Q(-2, 3)$ is first reflected over the y -axis, then the result is translated 5 units down. Give the coordinates of the final image.
15. Quadrilateral with vertices $(4, 6)$, $(2, -4)$, $(-6, 2)$, and $(0, 8)$ is dilated from the origin by a scale factor of $\frac{1}{2}$. Give the coordinates of the four image vertices.