

Unit 1: Constructions and Rigid Transformations

ADVANCED · SET 2

Name: _____ Date: _____

Show your work, then write each final answer exactly as a coordinate pair, number, or value in the form requested.

1. Point A is at $(-7, 4)$. Apply the translation by vector $(5, -9)$, and then translate the image by the vector $(-3, 6)$. Give the coordinates of the final image point.

Answer: _____

3. Rotate the point $(6, -11)$ counterclockwise 90° about the origin. Give the coordinates of the image.

Answer: _____

5. Rotate the point $P(4, -1)$ counterclockwise 90° about the center $C(1, 2)$. Give the coordinates of the image.

Answer: _____

7. A single translation maps $A(-6, 13)$ onto $A'(9, -2)$. Write the translation vector in the form (a, b) .

Answer: _____

9. Point $(7, -2)$ is first reflected over the x -axis, and its image is then rotated 90° counterclockwise about the origin. Give the coordinates of the final image.

Answer: _____

11. Reflect the point $(10, -3)$ over the line $y = -x$. Give the coordinates of the image.

Answer: _____

2. Point $P(8, -3)$ is first reflected over the line $y = x$, and its image is then reflected over the x -axis. Give the coordinates of the final image.

Answer: _____

4. Rotate the point $P(3, 7)$ by 180° about the center $C(-2, 5)$. Give the coordinates of the image.

Answer: _____

6. Reflect the point $(-4, 9)$ over the vertical line $x = 3$. Give the coordinates of the image.

Answer: _____

8. Rotate the point $(-8, -5)$ counterclockwise 270° about the origin. Give the coordinates of the image.

Answer: _____

10. A segment has endpoints $A(-9, 4)$ and $B(5, -12)$. The perpendicular bisector of AB passes through the segment's midpoint. Give the coordinates of that midpoint.

Answer: _____

12. A regular 15-gon is mapped onto itself by a rotation about its center. What is the smallest positive angle of rotation, in degrees, that carries it onto itself?

Answer: _____