

Unit 1: Constructions and Rigid Transformations

ADVANCED

Name: _____ Date: _____

Show each step. Give exact answers: coordinate pairs as (x, y) and other values as short exact numbers.

1. Point A(-6, 11) is first reflected across the line $y = x$, and the image is then translated by the vector $\langle 4, -9 \rangle$. What are the coordinates of the final image?

Answer: _____

3. Point P(9, 4) is rotated 270° counterclockwise about the center C(2, -1). What are the coordinates of the image P'?

Answer: _____

5. Point Q(-3, 8) is first reflected across the vertical line $x = 5$, and its image is then reflected across the horizontal line $y = -2$. What are the coordinates of the final image?

Answer: _____

7. Point P(-5, 9) is rotated 180° about the center C(3, -4). What are the coordinates of the image P'?

Answer: _____

9. To construct the perpendicular bisector of segment AB with A(-9, 14) and B(5, -8), you first locate the midpoint the bisector passes through. What are the coordinates of that midpoint?

Answer: _____

2. Point P(7, -13) is rotated 90° counterclockwise about the origin, and the result is then reflected across the x -axis. What are the coordinates of the final image?

Answer: _____

4. A single translation maps A(-8, 5) to A'(6, -12). Using that same translation, what is the image of the point B(3, 3)?

Answer: _____

6. Point M(4, -7) is reflected across the vertical line $x = 1$, and that image is then reflected across the vertical line $x = 6$. What are the coordinates of the final image?

Answer: _____

8. Point R(12, -5) is reflected across the line $y = -x$, and its image is then translated by the vector $\langle -7, 8 \rangle$. What are the coordinates of the final image?

Answer: _____

10. Point S(-6, -11) is rotated 90° clockwise about the origin, and its image is then reflected across the y -axis. What are the coordinates of the final image?

Answer: _____

11. The distance between A(-3, 4) and B(9, -1) is preserved by any rigid transformation. If both points are translated by the vector $\langle 5, -8 \rangle$, what is the exact distance between the two image points?

Answer: _____

12. Point T(8, 15) is reflected across the x-axis, and its image is then rotated 90° counterclockwise about the origin. What are the coordinates of the final image?

Answer: _____