

## Unit 6: Coordinate Geometry

## ADVANCED · SET 2

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Show all work. Give each answer as an exact value in plain-text notation (e.g.  $3/4$ ,  $(2, -1)$ ,  $\text{sqrt}(41)$ ).

1. Find the exact distance between the points A(-7, 4) and B(5, -11). Simplify any radical.

Answer: \_\_\_\_\_

3. Point P divides the directed segment from A(-4, -3) to B(11, 12) in the ratio 2:3 (measured from A). Find the coordinates of P.

Answer: \_\_\_\_\_

5. A circle has a diameter whose endpoints are (-3, 4) and (9, -12). Find the radius of the circle.

Answer: \_\_\_\_\_

7. The parabola  $(x - 2)^2 = 8(y + 3)$  opens upward. Find the coordinates of its focus.

Answer: \_\_\_\_\_

9. The point (-6, 3) is first reflected across the line  $y = x$ , and the image is then translated by  $(x + 4, y - 5)$ . Find the coordinates of the final image.

Answer: \_\_\_\_\_

11. A circle has equation  $(x + 2)^2 + (y - 5)^2 = 100$ . Does the point (6, 11) lie exactly on this circle? Answer yes or no.

Answer: \_\_\_\_\_

2. Find the slope of the line passing through the points (-3, 7) and (9, -2).

Answer: \_\_\_\_\_

4. The circle  $x^2 + y^2 - 6x + 8y - 11 = 0$  is given in general form. Find its radius.

Answer: \_\_\_\_\_

6. Find the vertex of the parabola  $y = 2x^2 - 12x + 23$ .

Answer: \_\_\_\_\_

8. The point (5, -8) is rotated  $90^\circ$  counterclockwise about the origin. Find the coordinates of its image.

Answer: \_\_\_\_\_

10. Find the slope of a line that is perpendicular to the line  $3x - 5y = 15$ .

Answer: \_\_\_\_\_

12. A triangle has vertices A(-1, 2), B(5, 4), and C(2, 9). Find the exact area of the triangle using the coordinates.

Answer: \_\_\_\_\_