

Geometry in the Coordinate Plane

Name: _____ Date: _____

Algebra Proofs

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

1. Quadrilateral ABCD has vertices A(-1, 3), B(3, 5), C(4, 3), and D(0, 1). Is ABCD a rectangle?

2. Do these points form a parallelogram? A (3, 1); B (-1, -2); C (-4, -2); D (-2, 1)

3. Circle C has a center of (-2, 3) and a radius of 4. Does point (-4, 6) lie on circle C?

4) Find the point P that partitions the segment between points E (1,7) and F(11,-3) into a 3:2 ratio.

5. Do the points A(-1, 1) , B(1, -4) and C(-4, -4) form an isosceles triangle?

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$$\text{distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

6. A circle has a diameter with endpoints $(-2, 6)$ and $(4, 0)$. Find the center and radius of the circle.

7. Point C is the **midpoint** between points A and B. If point C is at $(-4, 10)$ and Point A is $(4, 8)$, what is the Point B?

8. Circle C has a center of $(-2, 3)$ and a radius of $3\sqrt{2}$. Does point $(-5, 6)$ lie on circle C?

9. A circle is centered at $(5, 3)$ and has a radius of 4. Does the point $(2.5, 6)$ lie on the circle?