Name _____ Date _____ Period _____

DIRECTIONS: For #1-3, find the **distance** between the points and the **midpoint** for the segment defined by the points.

1. $(3, 0)$, $(8, -5)$ Distance _____ Midpoint _____

2. $(-5, 2)$, $(-3, 9)$ Distance _____ Midpoint _____

3. $(3 + \sqrt{2}, 6 + \sqrt{5})$, $(-3 + \sqrt{2}, 6 - \sqrt{5})$ Distance _____ Midpoint _____

DIRECTIONS: For #4, find the coordinates of Q given that M is the midpoint of $\overline{PQ}$.

4. $P\ (2, -1)$, $M\ (5, 3)$ _____

DIRECTIONS: For #5-6, write an equation of the circle with the given center and radius.

5. Center: $(4, 2)$; radius $= 6$ _____

6. Center: $(-1, -3)$; radius $= 3\sqrt{3}$ _____

DIRECTIONS: For #7-9, write the following equations in the standard form of a circle, then find the center and radius.

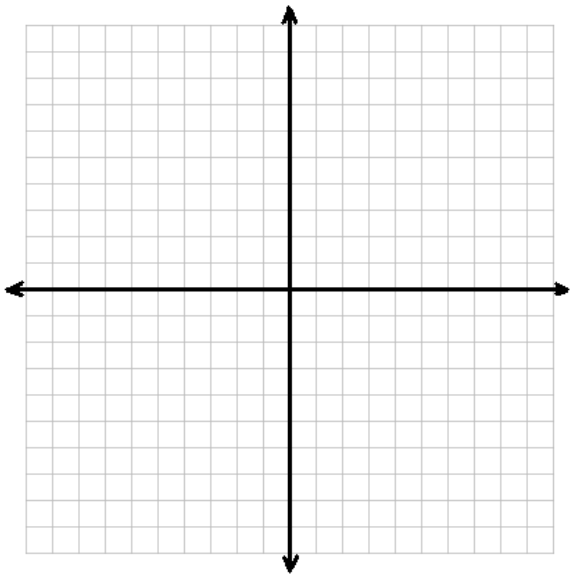
7. $x^2 + y^2 - 8x + 6y + 16 = 0$ _____

8. $x^2 + 10x + y^2 = 0$ _____

9. $4x^2 + 4y^2 - 2x - 24y = 0$ _____

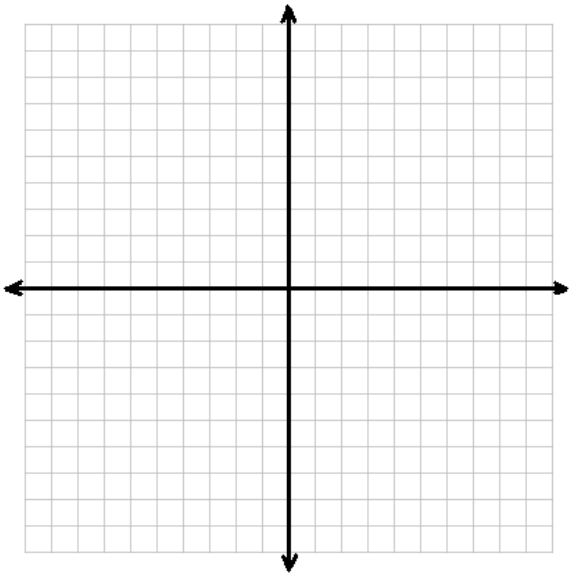
DIRECTIONS: For #10, sketch a circle on the graph described by the given equation.

10. $(x + 2)^2 + (y - 2)^2 = 16$



DIRECTIONS: For #11-12, write an equation in the standard form of a circle described by the given information. Graphs are provided for your convenience- you are not required to use them.

11. Center in Quadrant II; radius of 5; circle is tangent to the y-axis at $(0, 3)$



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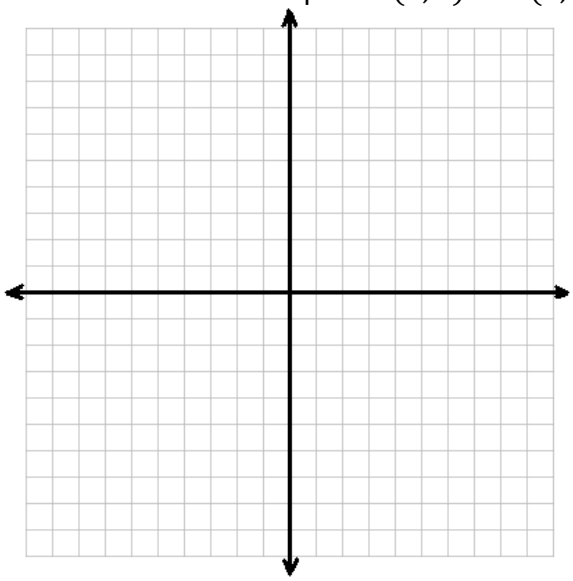
12. A diameter has endpoints $(1, 4)$ and $(9, 2)$



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