

The Circle

The Distance Formula

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

The Midpoint Formula

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

- 1) Find the distance and midpoint.
(8, -4) and (5, -2)

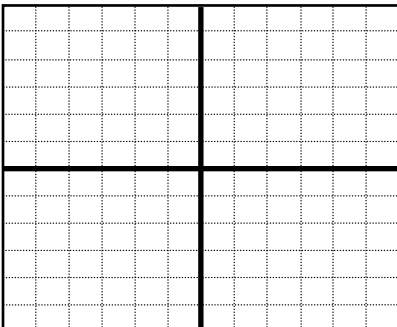
- 2) Find the distance and midpoint.
(3, -1) and (-5, -2)

Standard Form of a Circle:

$$(x - h)^2 + (y - k)^2 = r^2$$

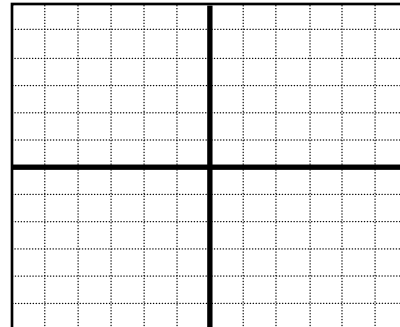
- 3) Graph.

$$y^2 = 4 - x^2$$

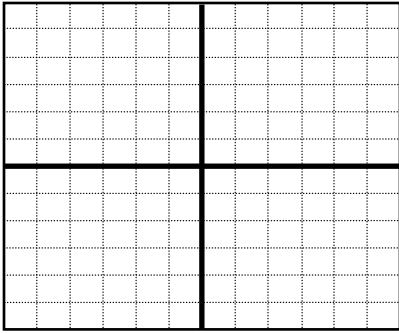


- 4) Graph.

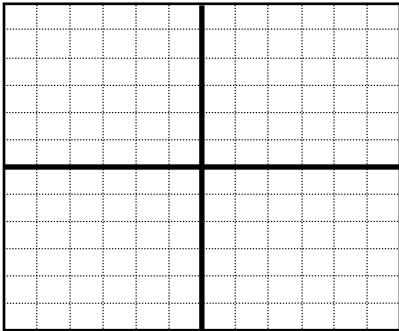
$$(x + 3)^2 + (y - 1)^2 = 8$$



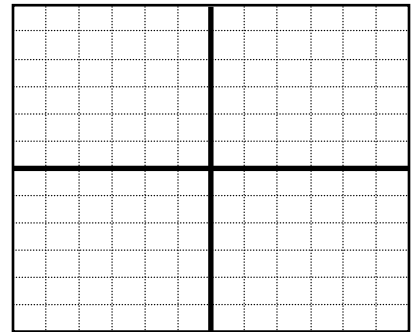
5) $(2, -1)$ is on a circle centered at the point $(-1, -2)$. Write the equation of the circle.



6) $(5, 1)$ is on a circle centered at the point $(1, 3)$. Write the equation of the circle.



7) Write the equation of the circle $x^2 + y^2 - 2x + 6y + 3 = 0$ in standard form and graph.



8) Write the equation of the circle $x^2 + y^2 + 4x - 8y - 5 = 0$ in standard form and graph.

