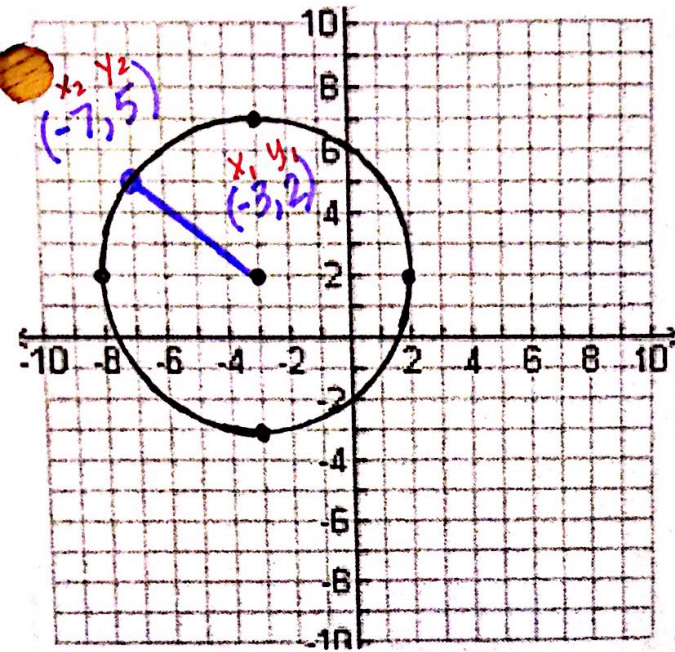


# Equations of Circles in Standard Form NOTES



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

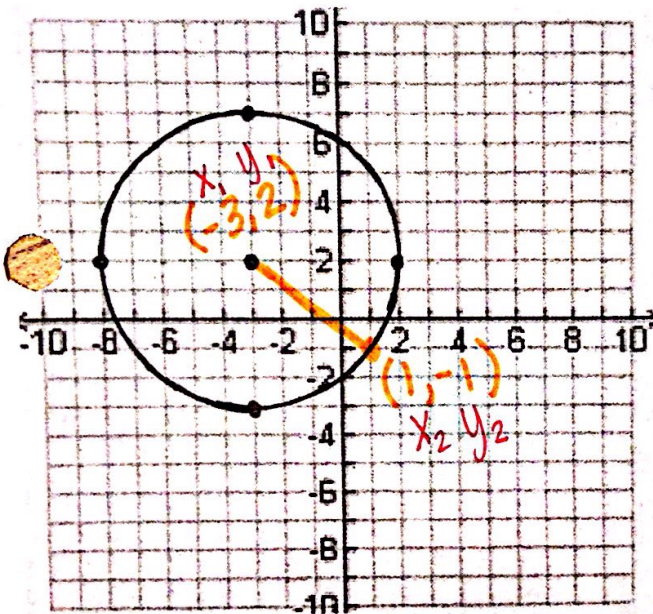
$$d = \sqrt{(-7 - (-3))^2 + (5 - 2)^2}$$

$$d = \sqrt{(-4)^2 + (3)^2}$$

$$d = \sqrt{16 + 9}$$

$$d = \sqrt{25}$$

$$d = 5$$



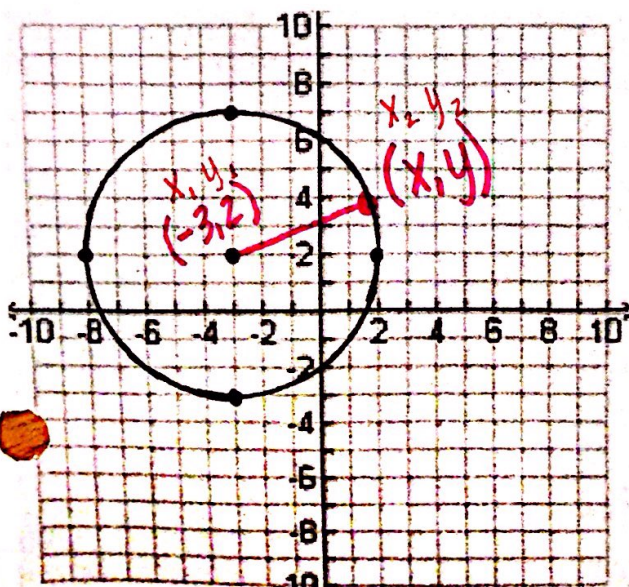
$$d = \sqrt{(1 - (-3))^2 + (-1 - 2)^2}$$

$$d = \sqrt{(4)^2 + (-3)^2}$$

$$d = \sqrt{16 + 9}$$

$$d = \sqrt{25}$$

$$d = 5$$



$$d = \sqrt{(x - (-3))^2 + (y - 2)^2}$$

$$(d)^2 = \left( \sqrt{(x + 3)^2 + (y - 2)^2} \right)^2$$

$$d^2 = (x + 3)^2 + (y - 2)^2$$

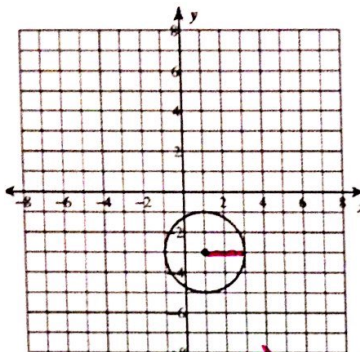
$$r^2 = (x + 3)^2 + (y - 2)^2$$

$$5^2 = (x + 3)^2 + (y - 2)^2$$

# Equation of a Circle

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

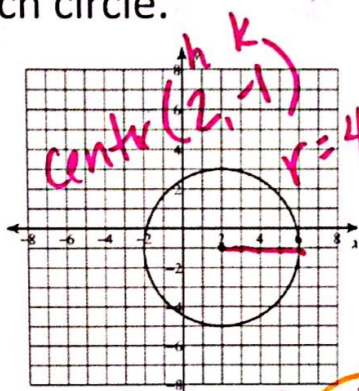
Write the equation of each circle.



center  $(1, -3)$   $r = 2$

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

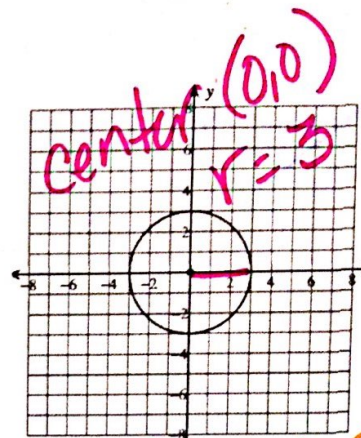
$$(x - 1)^2 + (y + 3)^2 = 4$$



center  $(2, -1)$   $r = 4$

$$(x - 2)^2 + (y - (-1))^2 = 4^2$$

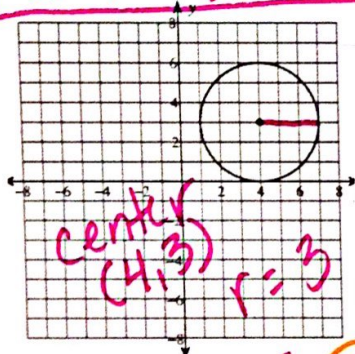
$$(x - 2)^2 + (y + 1)^2 = 16$$



center  $(0, 0)$   $r = 3$

$$(x - 0)^2 + (y - 0)^2 = 3^2$$

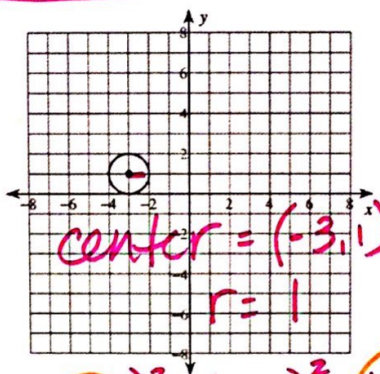
$$x^2 + y^2 = 9$$



center  $(4, 3)$   $r = 3$

$$(x - 4)^2 + (y - 3)^2 = 3^2$$

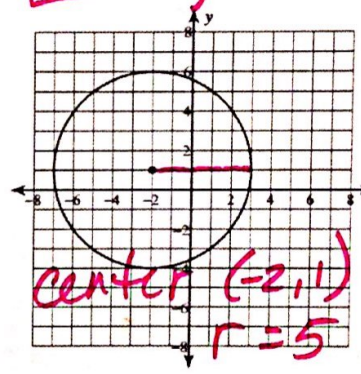
$$(x - 4)^2 + (y - 3)^2 = 9$$



center  $(-3, 1)$   $r = 1$

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

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



center  $(-2, 1)$   $r = 5$

$$(x - (-2))^2 + (y - 1)^2 = 5^2$$

$$(x + 2)^2 + (y - 1)^2 = 25$$

Identify the center and radius of each circle.

$$(x + 3)^2 + (y - 6)^2 = 16$$

center  $(-3, 6)$   $r = 4$

$$(x - 2)^2 + (y + 1)^2 = 144$$

center  $(2, -1)$   $r = 12$

$$x^2 + (y + 4)^2 = 10$$

center  $(0, -4)$   $r = \sqrt{10} \approx 3.16$

$$(x + 1)^2 + y^2 = 36$$

center  $(-1, 0)$   $r = 6$

$$(x + 3)^2 + (y - 6)^2 = 6$$

center  $(-3, 6)$   $r = \sqrt{6} \approx 2.45$

$$(x - 1)^2 + (y - 7)^2 = 9$$

center  $(1, 7)$   $r = 3$

$$(x + 5)^2 + (y - 10)^2 = 36$$

center  $(-5, 10)$   $r = 6$

$$x^2 + y^2 = 225$$

center  $(0, 0)$   $r = 15$

$$(x - 9)^2 + y^2 = 15$$

center  $(9, 0)$   $r = \sqrt{15} \approx 3.07$

$$(x + 8)^2 + (y + 7)^2 = 5$$

center  $(-8, -7)$   $r = \sqrt{5} \approx 2.24$