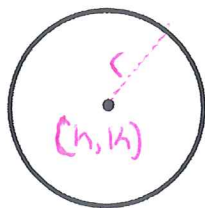


Geometry - 10.8 - Equations of Circles

Standard Equation of a Circle



- An equation for a circle with center at (h, k) and radius of r units is:

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

Ex 1 - Write an equation for each circle.

a) center at $(-1, 3)$, $r = 5$

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

$$(x-(-1))^2 + (y-3)^2 = 5^2$$

$$(x+1)^2 + (y-3)^2 = 25$$

b) center at origin, $d = 16$

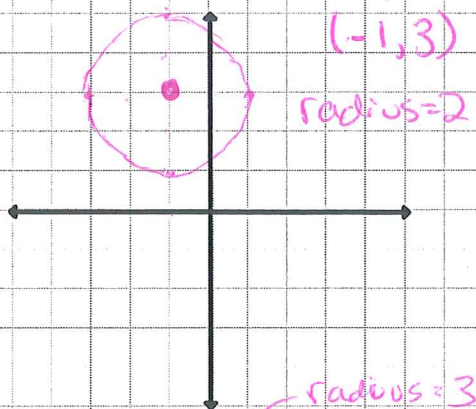
$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-0)^2 + (y-0)^2 = 8^2$$

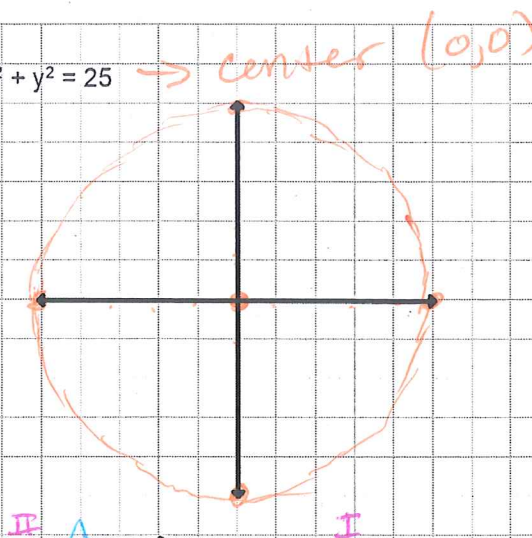
$$x^2 + y^2 = 64$$

Ex 2 - Graph the following equations.

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



b) $x^2 + y^2 = 25$



Ex 3 - A circle with a diameter of 6 has its center in the fourth quadrant. The lines $y = 1$ and $x = -2$ are tangent to the circle. Graph the circle and find its equation.

Center $(1, -2)$

radius = 3

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

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

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

