Warm Up

1. Evaluate: $\sqrt{(10-2)^2+(8+7)^2}$

$\sqrt{(8)^2+(15)^2}$ $\sqrt{64+225}$ $\sqrt{289}$ 17

2. Evaluate: $\sqrt{(-3-2)^2+(-8-4)^2}$

$\sqrt{(-5)^2+(-12)^2}$ $\sqrt{25+144}$ $\sqrt{169}=13$

3. What is the distance between (2, 3) and (-1, 4)?

$\sqrt{3^2+(-1)^2}$ $\sqrt{9+1}$ $\sqrt{10}$ ≈ 3.1

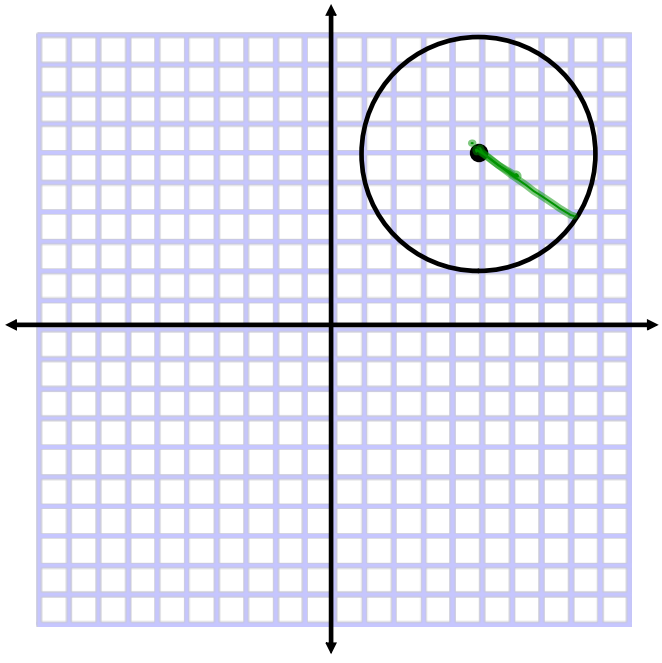
10-7 Equations of Circles

Equation of a circle -

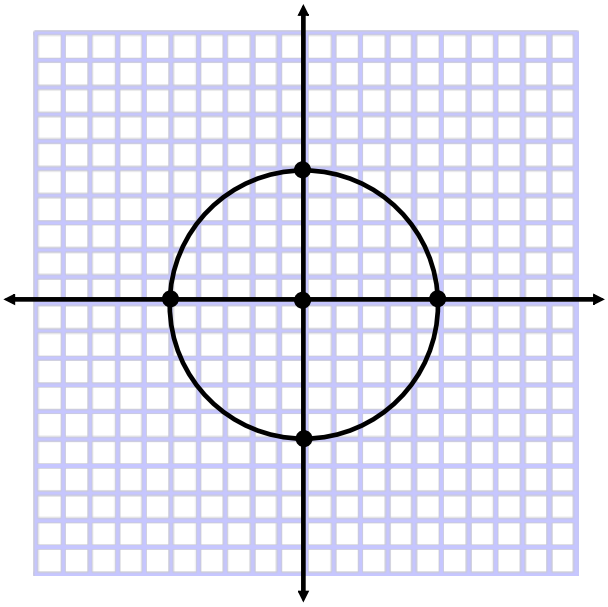
center = (h, k)
radius = r

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

$\sqrt{(x-h)^2+(y-k)^2}=r$



Ex 1 Write the equation of the circle shown.

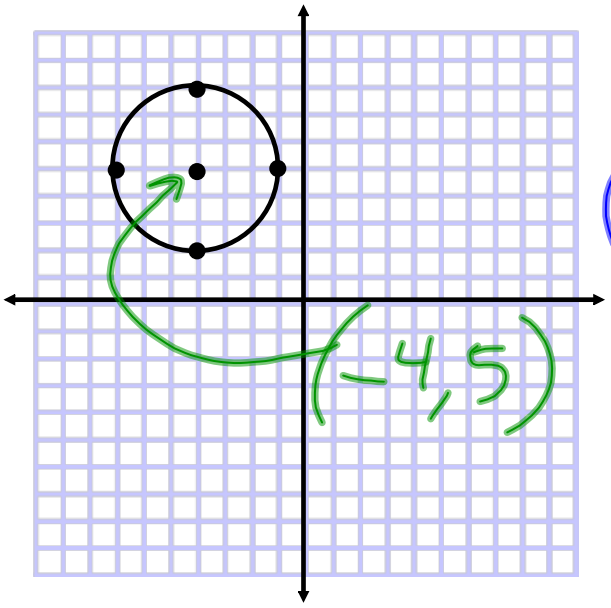


$(x-h)^2+(y-k)^2=r^2$

$(x-0)^2+(y-0)^2=5^2$

$x^2+y^2=25$

Ex 2 Write the equation of the circle shown.



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

$(x+4)^2+(y-5)^2=9$

Ex 3 Write the standard equation of the circle with center (-2, 3) and radius 3.8

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

$(x+2)^2+(y-3)^2=3.8^2$

Ex 4 Write the standard equation of the circle with center (5, 0) and diameter 12. radius = 6

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

Ex 5 The point (8, -1) is on a circle with center (4, 2).
Write the standard equation of the circle.

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

$(8-4)^2 + (-1-2)^2 = r^2$

$4^2 + (-3)^2 = r^2$

$16 + 9 = r^2$

$25 = r^2$

$5 = r$

$(x-4)^2 + (y-2)^2 = 25$

Ex 6 The point (6, 4) is on a circle with center (3, 8).
Write the standard equation of the circle.

$(6-3)^2 + (4-8)^2 = r^2$

$3^2 + (-4)^2$

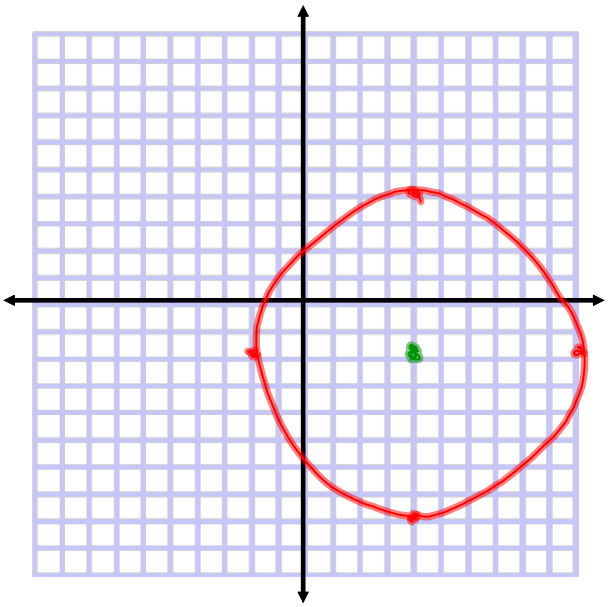
$9 + 16 = r^2$

$25 = r^2$

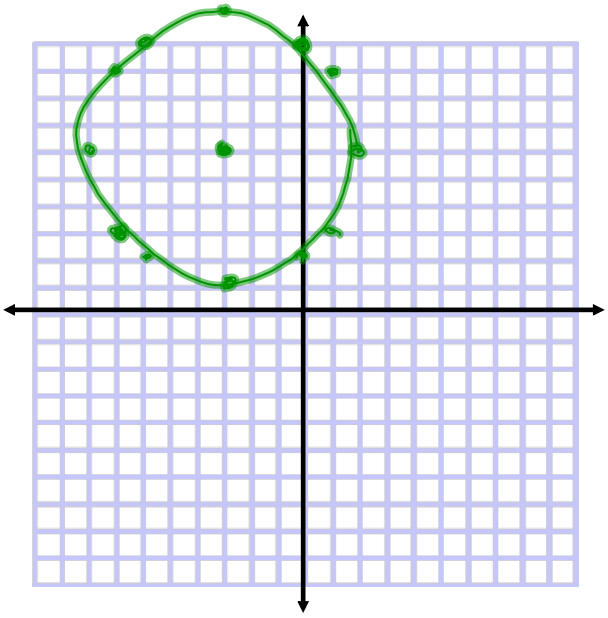
$5 = r$

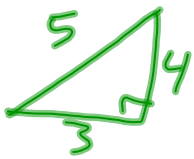
$(x-3)^2 + (y-8)^2 = 25$

Ex 7 The equation of a circle is $(x - 4)^2 + (y + 2)^2 = 36$
Graph the circle.



Ex 8 The equation of a circle is $(x + 3)^2 + (y - 6)^2 = 25$
Graph the circle.





Ex 9 Four tangent circles are centered on the x-axis. The radius of circle A is twice the radius of circle O. The radius of circle B is three times the radius of circle O. The radius of circle C is four times the radius of circle O. All circles have integer radii and the point (63, 16) is on circle C. What is the equation of circle A.