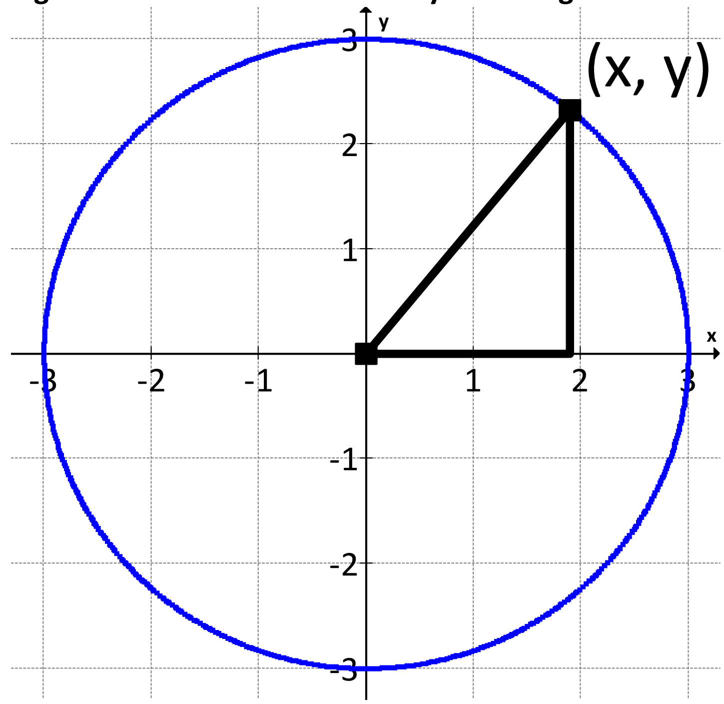
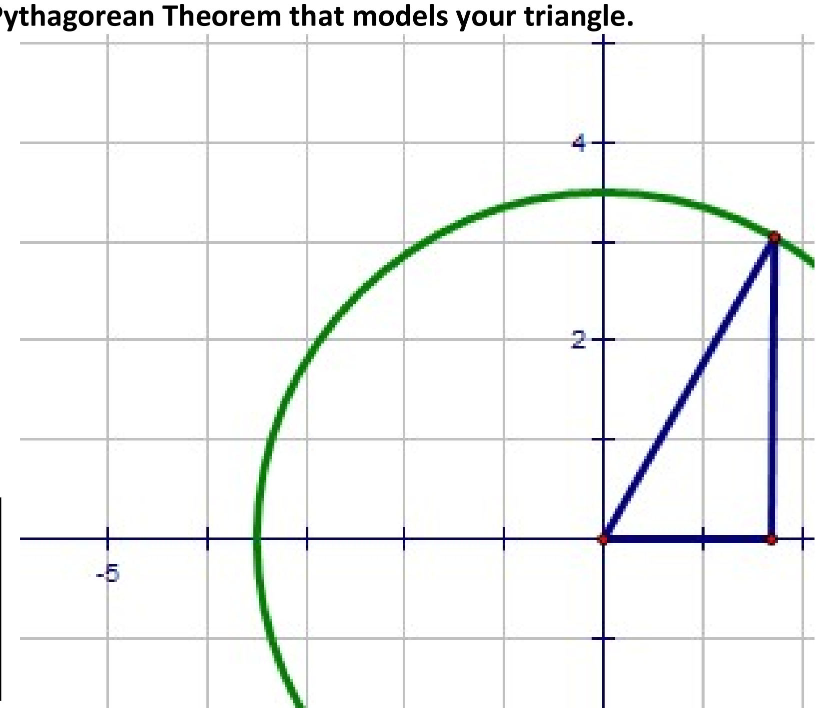
2. Now that you have seen how the Pythagorean Theorem relates to the radius of a circle, you will develop that relationship in a more general sense. An *arbitrary point* has been placed on the circle of radius 3. A right triangle has been drawn in for you as well. **Label the triangle's legs and hypotenuse, and then write the Pythagorean Theorem that models your triangle.**



3. Finally, try to move to a more general circle. This time, not only is the point arbitrary, but the radius is as well. Call the radius *r*. **Similar to problem #2, label the right triangle's legs and hypotenuse and then write the Pythagorean Theorem that models your triangle.**



Standard form Circle equation with Center at the Origin:

____

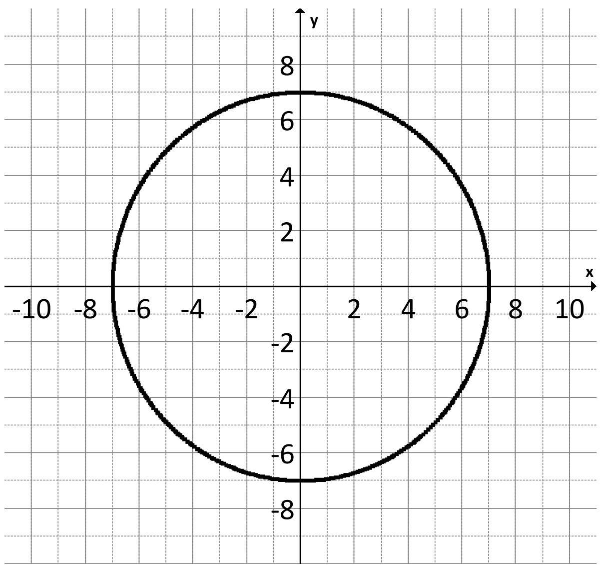
Circles, Transformed

Standard Form of a Circle

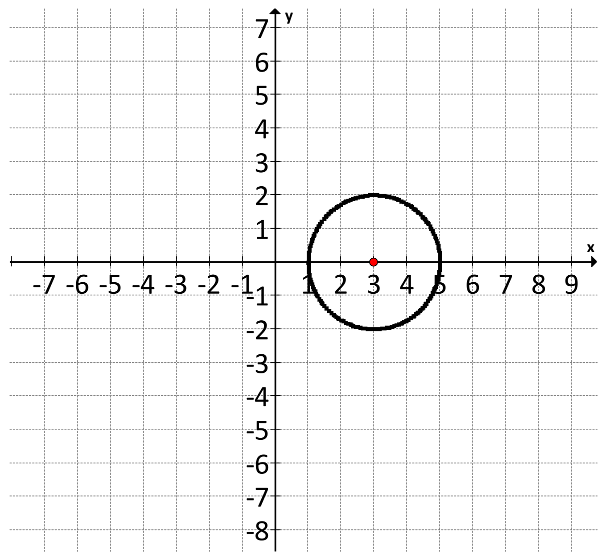
where (h,k) is _______________ and r is the _______________

Using a Circle's Equation

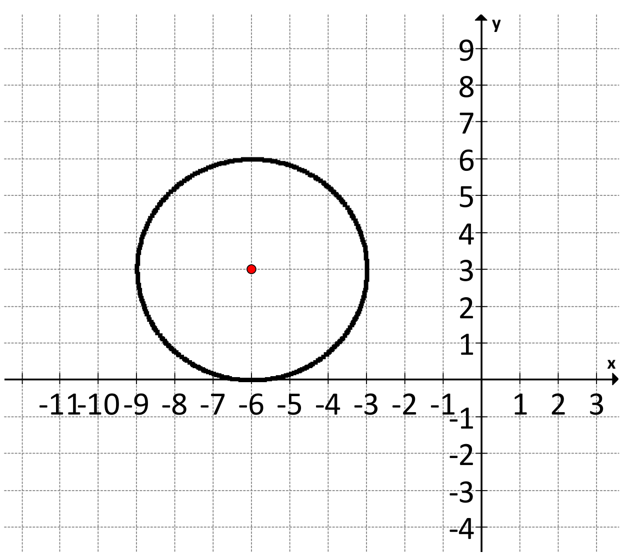
1. Write the equation of each circle below.



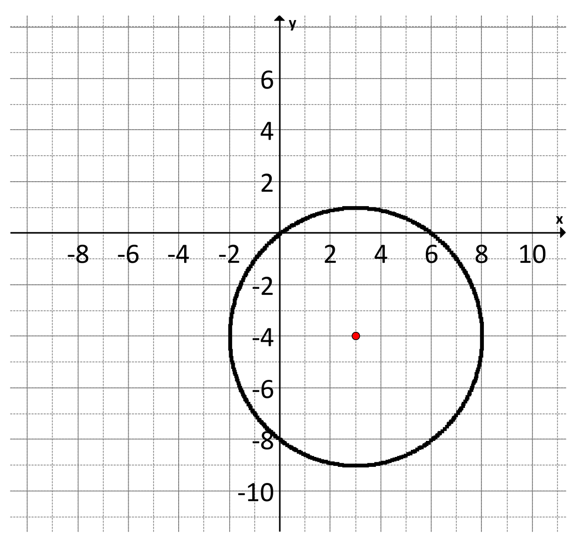
Equation: ___________________



Equation: __________________



Equation: ____________________



Equation: ___________________

2. Given the equation of the circle, identify the radius and center for each circle. Leave answers in simplest radical form.

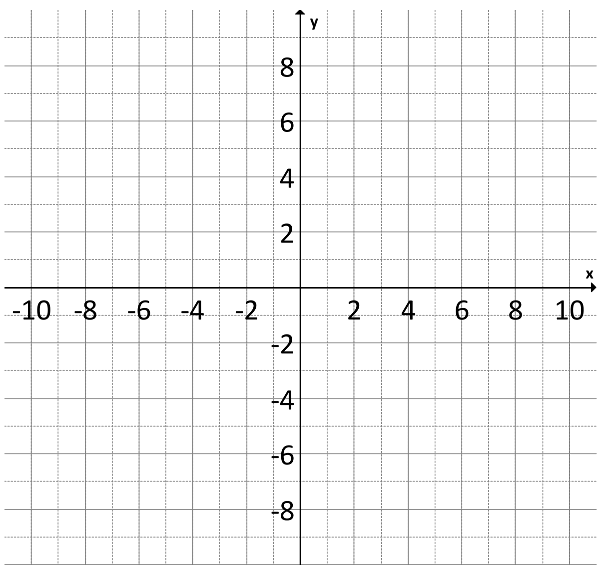
$x^2 + (y-8)^2 = 100$ $(x+1)^2 + (y-4)^2 = 1$ $(x-10)^2 + (y+3)^2 = 50$ $(x+2)^2 + (y-2)^2 = 45$

Radius: Radius: Radius: Radius:

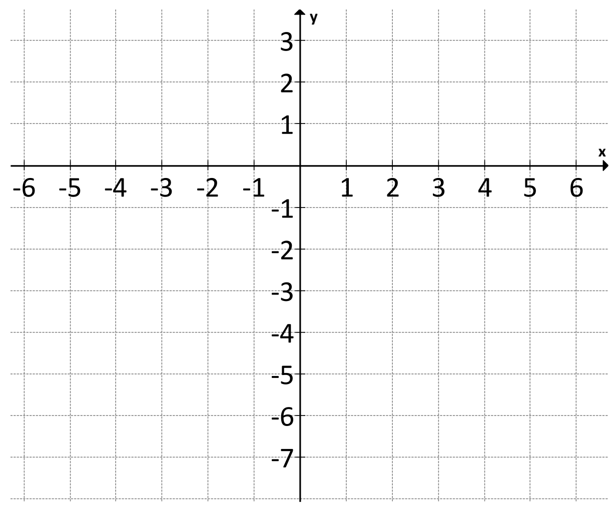
Center: (,) Center: (,) Center: (,) Center: (,)

3. Use the equation to graph each circle.

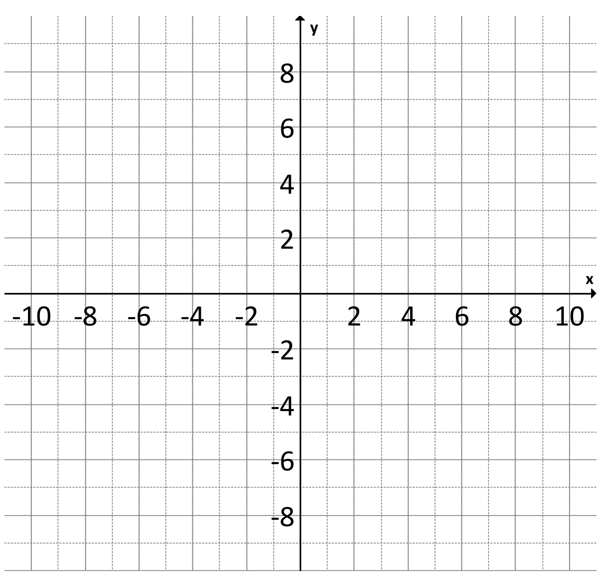
$(x-3)^2 + y^2 = 16$



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



$x^2 + (y+4)^2 = 36$



$(x-5)^2 + (y-5)^2 = 25$