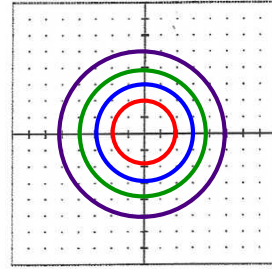


Enter each set of equations on the same coordinate grid. Observe the differences and similarities among the graphs.

Sketch the graphs.

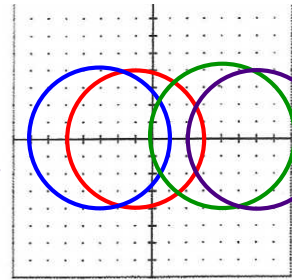
- $x^2 + y^2 = 4$ $C(0,0) \quad r=2$
 $x^2 + y^2 = 9$ $C(0,0) \quad r=3$
 $x^2 + y^2 = 16$ $C(0,0) \quad r=4$
 $x^2 + y^2 = 25$ $C(0,0) \quad r=5$

- How does the graph of the circle change when the constant term increases? It gets bigger.
- Where is the center of each of these circles? the origin



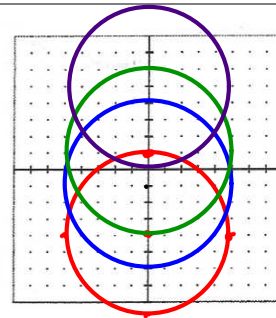
- $(x+1)^2 + y^2 = 16$ center $C(-1,0) \quad r=4$
 $(x+3)^2 + y^2 = 16$ $C(-3,0) \quad r=4$
 $(x-4)^2 + y^2 = 16$ $C(4,0) \quad r=4$
 $(x-6)^2 + y^2 = 16$ $C(6,0) \quad r=4$

- How does the graph change when a constant is added to the x term before it is squared? It moves left or right



- $x^2 + (y+4)^2 = 25$ center $C(0,-4) \quad r=5$
 $x^2 + (y+1)^2 = 25$ $C(0,-1) \quad r=5$
 $x^2 + (y-1)^2 = 25$ $C(0,1) \quad r=5$
 $x^2 + (y-5)^2 = 25$ $C(0,5) \quad r=5$

- How does the graph change when a constant is added to the y term before it is squared? It moves up or down



Standard form of the equation of a circle.

$(x-h)^2 + (y-k)^2 = r^2$,
 where the center is (h, k) and the radius is r .

Write the equation of the circle:

1. $C(3, -2)$ $r = 5$ $(x-3)^2 + (y+2)^2 = 25$

2. $C(-4, 0)$ $r = 6$ $(x+4)^2 + y^2 = 36$

3) $C(8, -3)$ $r = \sqrt{3}$ $(x-8)^2 + (y+3)^2 = 3$

State the center and radius of each circle, then sketch a graph.

4. $(x-4)^2 + (y+7)^2 = 64$ $C(4, -7)$ $r = 8$

5. $(x+2)^2 + y^2 = 16$ $C(-2, 0)$ $r = 4$

6. $(x-1)^2 + (y-4)^2 = 3$ $C(1, 4)$ $r = \sqrt{3}$