

Find the center and radius of each of the circles whose equations are given.

1. $x^2 + y^2 - 2y = 0$

ans: center is (0,1) radius is 1

2. $x^2 + 2x + y^2 = 0$

ans: center is (-1,0) radius is 1

3. $x^2 - 2x + y^2 - 6y = 6$

ans: center is (1,3) radius is 4

4. $x^2 + 4x + y^2 - 8y + 16 = 0$

ans: center is (-2,4) radius is 2

Write the equation of each circle whose center and radius are given.

5. C = (0,0) r = 7

ans: $x^2 + y^2 = 49$

6. C = (2, 3) r = 6

ans: $(x - 2)^2 + (y - 3)^2 = 36$

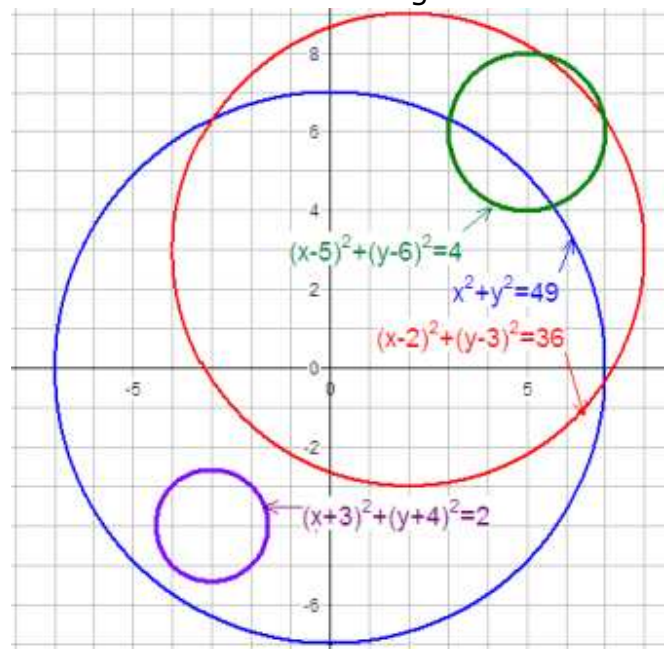
7. C = (5, 6) r = 2

ans: $(x - 5)^2 + (y - 6)^2 = 4$

8. C = (-3, -4) r = $\sqrt{2}$

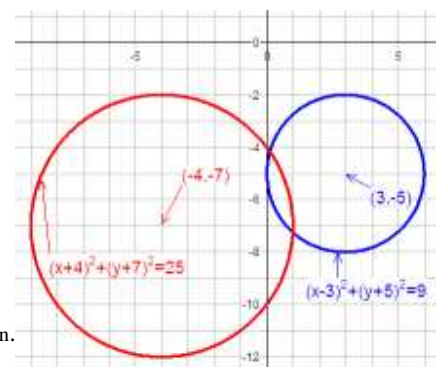
ans: $(x + 3)^2 + (y + 4)^2 = 2$

Sketch the graph of each of the circles in exercise 5 – 8.



9. Sketch the set of points that are three units from (3, -5). Describe the graph. Find the equation of the graph.

10. Sketch the set of points that are five units from (-4,-7). Describe the graph. Find the equation of the graph.



For #1)

$$x^2 + y^2 - 2y = 0$$

$$x^2 + y^2 - 2y + 1 = 1$$

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

center: (0,1) radius: 1

For #2)

$$x^2 + 2x + y^2 = 0$$

$$x^2 + 2x + 1 + y^2 = 1$$

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

center: (-1,0) radius: 1

For #3)

$$x^2 - 2x + 2x + y^2 - 6y = 6$$

$$x^2 - 2x + 1 + y^2 - 6y + 9 = 16$$

$$(x - 1)^2 + (y - 3)^2 = 16$$

center: (1,3) radius: 4

For #4)

$$x^2 + 4x + 2x + y^2 - 8y + 16 = 0$$

$$x^2 + 4x + 4 + y^2 - 8y + 16 = -16 + 4 + 16 = 4$$

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

center: (-2, 4) radius: 2