

Write the standard equation of the circle described below.

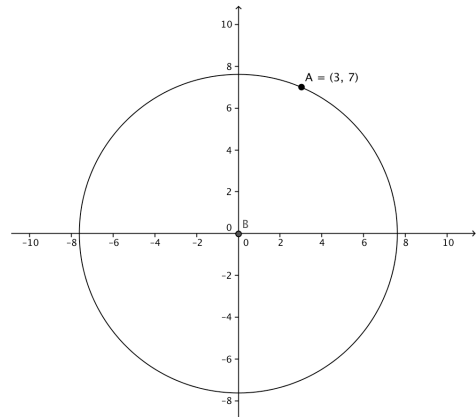
1. The center is  $(0,0)$  and the radius is 9.
2. The center is  $(-5,1)$  and the radius is 4.
3. The center is  $(0, -3.2)$  and the radius is 2.2.
4. The center is at the origin with a diameter of 6.
5. The center is at the origin and contains the point  $(7,8)$
6. The center is  $(-2,2)$  and the circle pass through  $(1, -3)$ .

7. Write an equation for the circle pictured to the right.

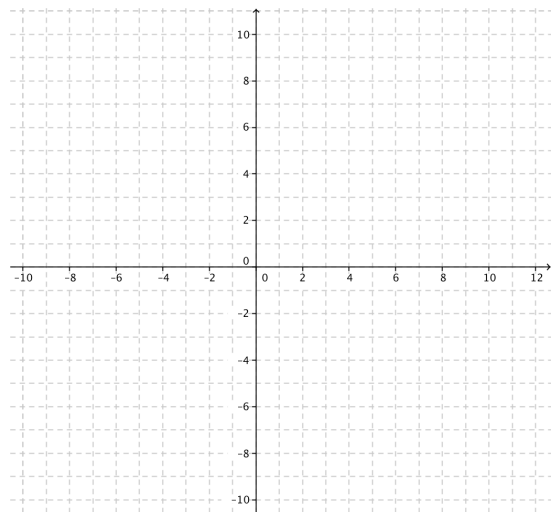
a. What is the center of the circle?

b. What is the radius of the circle?

c. What is the equation of the circle?



8. Draw the circle described by the equation  $(x - 3)^2 + (y + 2)^2 = 49$ .



9. Write the general equation of the circle with center  $(5, 0)$  and radius  $3\sqrt{2}$ .
10. Find the center and radius of the circle described by the equation  $x^2 + y^2 + 6x - 4y - 27 = 0$ .
11. Find the center and radius of the circle described by the equation  $x^2 + y^2 + 6x - 2y - 15 = 0$ .
12. Find the center and radius of the circle described by the equation  $x^2 + y^2 + 12x - 14y - 36 = 0$ .
13. Find the center and radius of the circle described by the equation  $2x^2 + 2y^2 + 2x - 6y + \frac{9}{2} = 0$ .
14. A pizza restaurant will deliver up to 5 miles. The restaurant is located at the origin on a coordinate plane whose units represent miles. What is the standard equation of the outer boundary of the delivery region? Customers are located at  $A(4, 3)$ ,  $B(5, 0)$ , and  $C(2, \sqrt{21})$ . Which of these customers, if any, are in the outer boundary. Explain.
15. Marco is a park ranger stationed in a fire tower. The tower is on a coordinate plane whose units represent miles. Marco is responsible for monitoring a region whose boundary has the equation  $x^2 + y^2 + 3x + y - 6.5 = 0$ . What is the geometric description of the region for which Marco is responsible?

