

## Worksheet 11.3: Circles

Find the center and the radius of each circle.

1.  $(x - 4)^2 + (y - 3)^2 = 9^2$

2.  $(x - 87)^2 + (y - 94)^2 = 6^2$

3.  $(x + 3)^2 + y^2 = 49$

4.  $(x + 7)^2 + (y + 8)^2 = \frac{36}{25}$

5.  $(x - j)^2 + (y + 14)^2 = 17$

6.  $(x + a)^2 + (y - b)^2 = c^2$

Write an equation of the circle that has the center and radius named.

7.

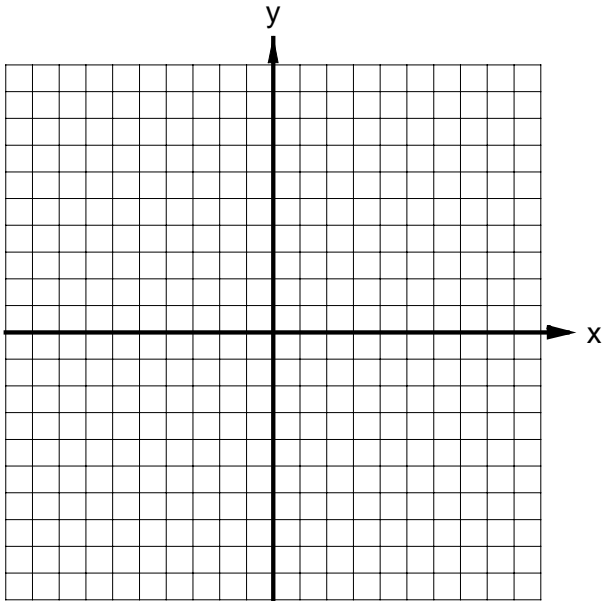
8.

9.

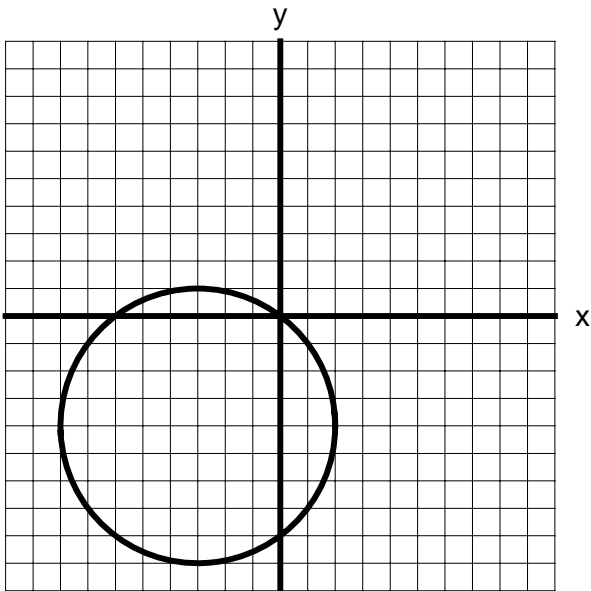
10.

Center	(0, 0)	(3, 0)	(-4, -7)	(p, q)
Radius	2	8	g	t

13. Sketch the graph of  $(x - 3)^2 + (y + 4)^2 = 36$



14. Write an equation of the circle drawn below.



In exercises 15-20, find an equation of the circle described.

15. The circle has center  $(5, 5)$  and is tangent to both axes.

16. The circle has center  $(p, q)$  and is tangent to the  $x$ -axis.
  
  
  
  
  
  
  
  
  
  
17. The circle has center  $(0, 6)$  and passes through the point  $(6, 14)$ .
  
  
  
  
  
  
  
  
  
  
18. The circle has center  $(-2, -4)$  and passes through the point  $(3, 8)$ .
  
  
  
  
  
  
  
  
  
  
19. The circle has diameter  $\overline{PD}$  where  $P$  is  $(0, 0)$  and  $D$  is  $(0, 4)$ .
  
  
  
  
  
  
  
  
  
  
20. The circle has diameter  $\overline{RS}$  where  $R$  is  $(-3, 2)$  and  $S$  is  $(3, 2)$ .
  
  
  
  
  
  
  
  
  
  
21. Two points on the circle  $(x - 2)^2 + (y - 4)^2 = 25$  both have  $y$ -coordinate 7. What are the  $x$ -coordinates of those two points.
  
  
  
  
  
  
  
  
  
  
22. Find an equation of the locus of the centers of all circles with radius 4 that pass through  $(-3, 2)$ .