

Systems & Conics Review

Identify the center and radius of each.

1) $(x - 4)^2 + (y - 13)^2 = 9$

2) $(x - 3)^2 + (y - 1)^2 = 64$

3) $(x - 3)^2 + (y + 3)^2 = 12$

4) $\left(x - \frac{1}{2}\right)^2 + (y - 6)^2 = 32$

Use the information provided to write the equation of each circle.

5) Center: $(-6, -10)$
Radius: 5

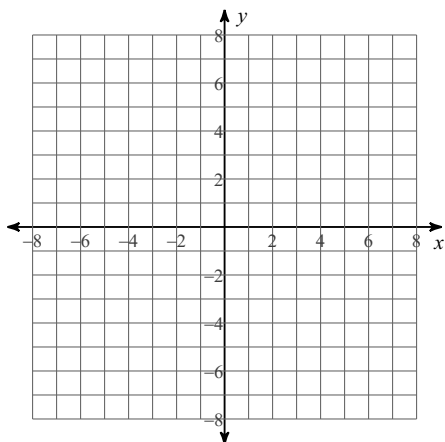
6) Center: $(7, -2)$
Radius: $\sqrt{8}$

7) Center: $(1, 13)$
Point on Circle: $(2, 10)$

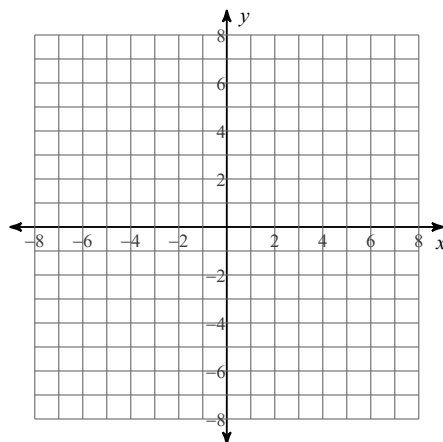
8) Center: $(0, 12)$
Point on Circle: $(-7, 12)$

Identify the center and radius of each. Then sketch the graph.

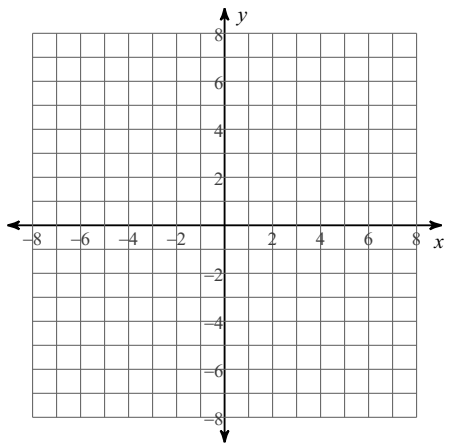
9) $(x + 2)^2 + (y - 2)^2 = 16$



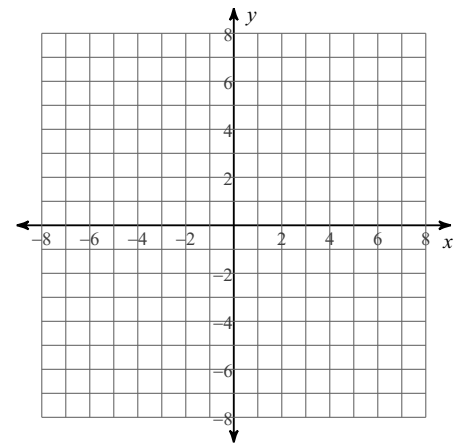
10) $(x - 4)^2 + (y + 3)^2 = 9$



11) $(x - 3)^2 + (y + 2)^2 = 13$

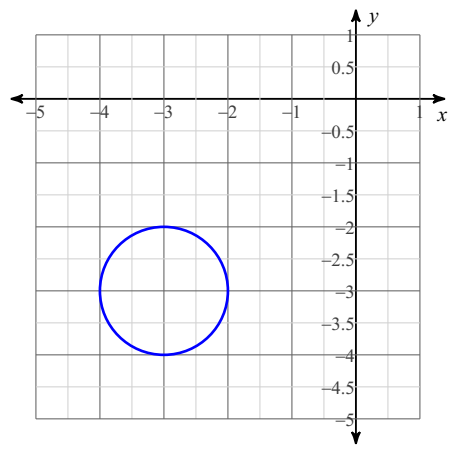


12) $(x + 3)^2 + (y - 1)^2 = 16$

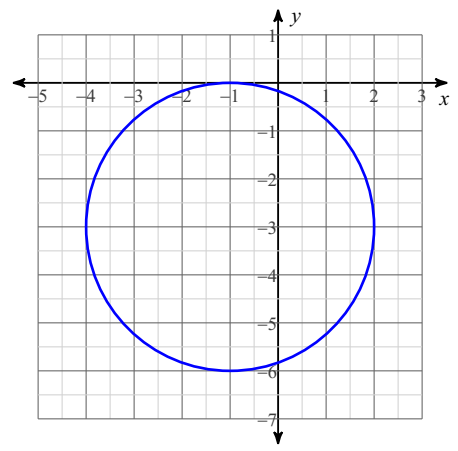


Use the information provided to write the equation of each circle.

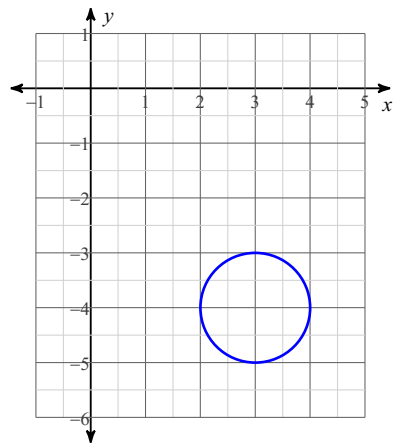
13)



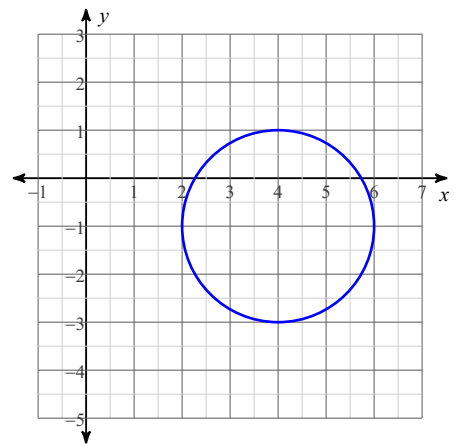
14)



15)

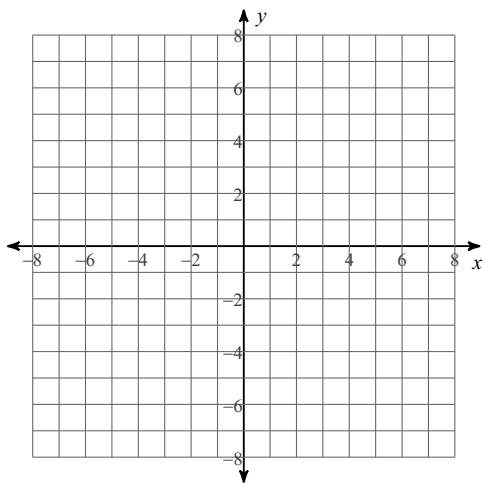


16)

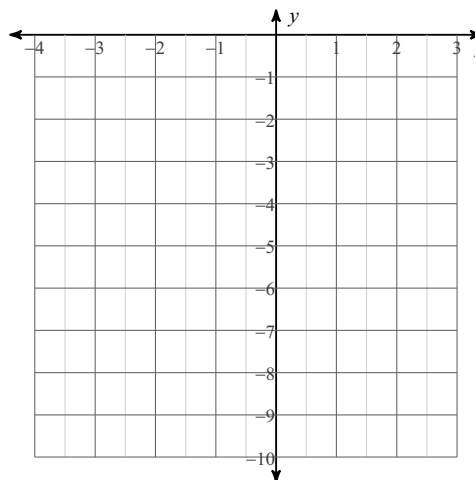


Solve the following systems by graphing.

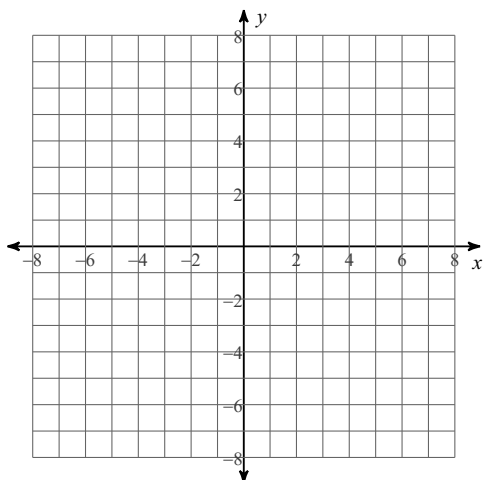
17) $y = -(x + 3)^2 + 6$
 $y = x + 7$



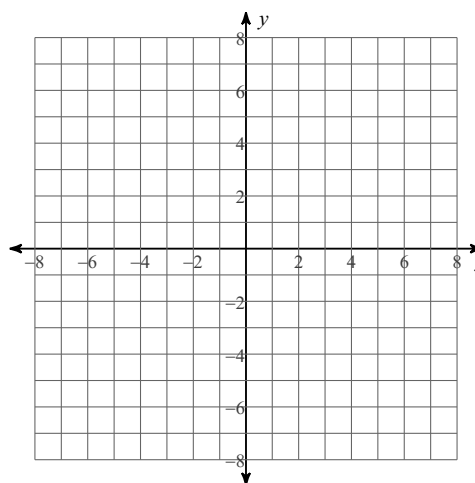
18) $y = (x + 4)(x - 2)$
 $y = 3x - 8$



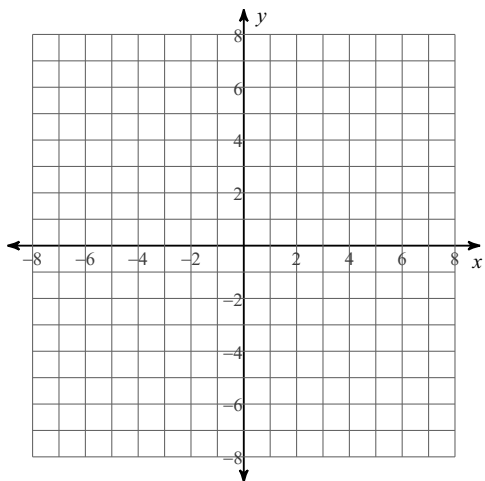
19) $x^2 + y^2 = 9$
 $y = x - 5$



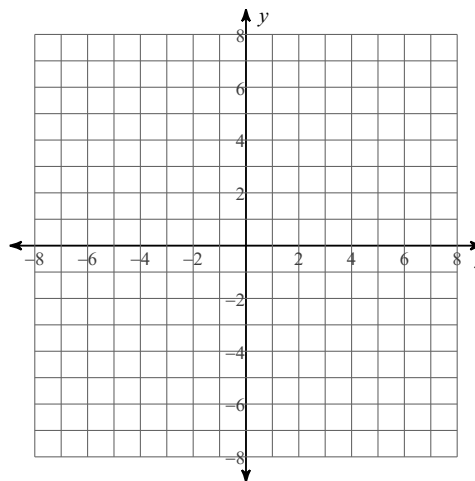
20) $x^2 + y^2 = 25$
 $y = \frac{3}{4}x$



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



22) $y = -x^2 - 4x - 2$
 $y = x - 2$



Solve each system by substitution.

$$\begin{aligned} 23) \quad y &= -2 \\ -x - 5y &= 9 \end{aligned}$$

$$\begin{aligned} 24) \quad -8x + 3y &= 13 \\ y &= 5x + 9 \end{aligned}$$

$$\begin{aligned} 25) \quad y &= x^2 - x - 12 \\ y &= x + 3 \end{aligned}$$

$$\begin{aligned} 26) \quad (x - 3)^2 + y^2 &= 89 \\ y &= 5 \end{aligned}$$

$$\begin{aligned} 27) \quad y &= x^2 - 3x - 4 \\ y &= x - 8 \end{aligned}$$

$$\begin{aligned} 28) \quad x^2 + (y + 2)^2 &= 130 \\ x &= 9 \end{aligned}$$

$$\begin{aligned} 29) \quad x^2 - 3y &= -3 \\ y &= x + 1 \end{aligned}$$

$$\begin{aligned} 30) \quad y &= 3x - 2 \\ x^2 - 4y &= 8 \end{aligned}$$

WRITE a system of equations that models the given situation. Make sure to define your variables. Do not solve.

31) Ted has \$6.80 in quarters and dimes. The number of dimes is 3 times the number of quarters.

32) An electronics store advertised a 19-inch model TV for \$349 and a 25-inch model TV for \$469. During one month they sold 44 TVs total and profited an amount of \$17,516.

For each problem define your variables, write a system of equations, and solve the system of equations by substitution.

33) Two burgers and one hotdog cost \$4.82. At the same price, one burger and two hotdogs cost \$3.70. How much does a hotdog cost?

34) At the football game they sold \$4 pizzas and \$2 sodas, which made the school \$260. The number of sodas sold was 5 more than three times the number of pizzas sold. Determine the amount of pizza and sodas sold.

- 35) Jimmy and Shayna each improved their yards by planting rose bushes and ivy. They bought their supplies from the same store. Jimmy spent \$275 on 13 rose bushes and 12 pots of ivy. Shayna spent \$88 on 2 rose bushes and 6 pots of ivy. What is the cost of one rose bush and the cost of one pot of ivy?
- 36) Mary and Nicole are selling cheesecakes for a school fundraiser. Customers can buy pecan cheesecakes and chocolate marble cheesecakes. Mary sold 3 pecan cheesecakes and 6 chocolate marble cheesecakes for a total of \$138. Nicole sold 12 pecan cheesecakes and 3 chocolate marble cheesecakes for a total of \$174. What is the cost each of one pecan cheesecake and one chocolate marble cheesecake?

Solve for x by factoring.

37) $x^2 + 13x + 40 = 0$

38) $x^2 + 3x - 54 = 0$

39) $x^2 + 5x + 4 = 0$

40) $4x^2 + 40x + 36 = 0$