Write the standard form of the equation of the circle with radius r and center (h, k).

1) $r = 8$; $(h, k) = (-2, 7)$

Find the center (h, k) and radius r of the circle with the given equation.

2) $(x - 3)^2 + y^2 = 144$

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

Find the general form of the equation of the the circle.

4) Center at the point (2, –3); containing the point (5, –3)

Find the equation of the parabola described.

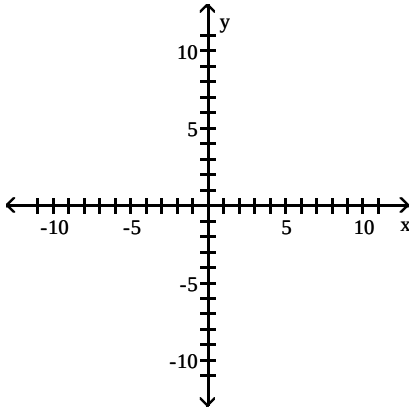
5) Directrix the line $y = 3$; vertex at (0, 0)

6) Vertex at (3, 4); focus at (3, 2)

7) Vertex at (4, –3); focus at (1, –3)

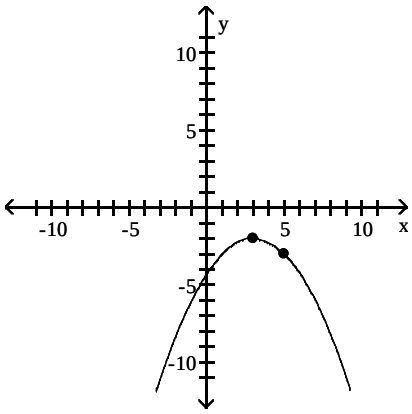
Find the vertex, focus, and directrix of the parabola. Graph the equation.

8) $x^2 - 8x = 8y - 40$



Write an equation for the parabola.

9)



points: (3, –2), (5, –3)

Solve.

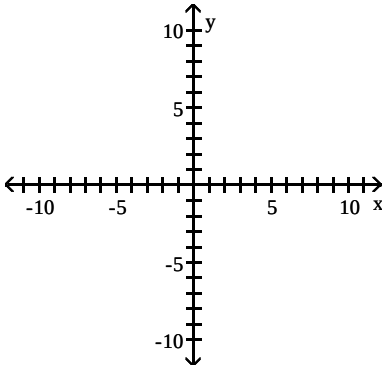
10) A bridge is built in the shape of a parabolic arch. The bridge arch has a span of 188 feet and a maximum height of 35 feet. Find the height of the arch at 20 feet from its center.

Find an equation for the ellipse. Graph the equation.

11) Foci at (0, ±4); length of major axis is 10

Graph the equation.

12) $\frac{(x - 1)^2}{9} + \frac{(y - 2)^2}{16} = 1$

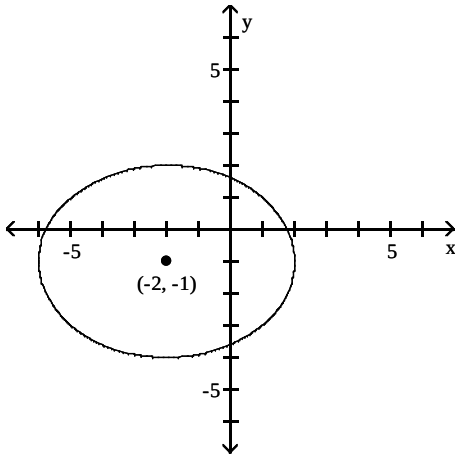


Discuss the equation; that is, find the center, foci, and vertices of the ellipse.

13) $2x^2 + 5y^2 - 20x + 50y + 165 = 0$

Write an equation for the ellipse.

14)



Solve.

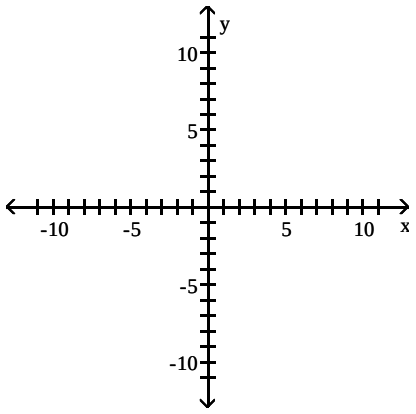
15) An arch for a bridge over a highway is in the form of a semiellipse. The top of the arch is 30 feet above ground (the major axis). What should the span of the bridge be (the length of its minor axis) if the height 29 feet from the center is to be 10 feet above ground?

Find an equation for the hyperbola described.

16) Vertices at (±6, 0); foci at (±10, 0)

Find an equation for the hyperbola described. Graph the equation.

17) Center at (0, 0); focus at (5, 0); vertex at (3, 0)



Find the center, transverse axis, vertices, foci, and asymptotes of the hyperbola.

18) $x^2 - 4y^2 - 4x + 8y - 4 = 0$

Find the asymptotes of the hyperbola.

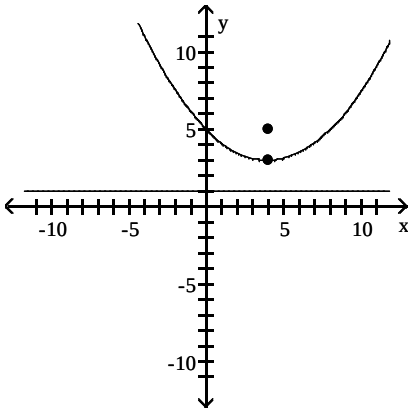
19) $\frac{x^2}{9} - \frac{y^2}{25} = 1$

Find an equation for the hyperbola described.

20) Vertices $(\frac{1}{2}, -3)$ and $(-\frac{9}{2}, -3)$; asymptotes

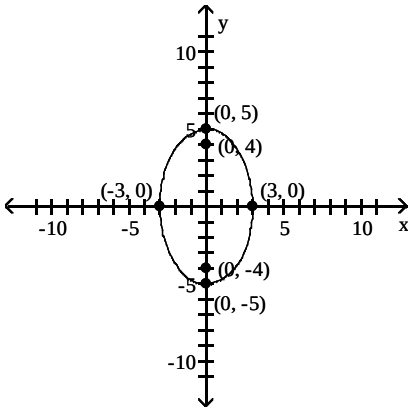
$y + 3 = \pm\frac{6}{5}(x + 2)$

1) $(x + 2)^2 + (y - 7)^2 = 64$
2) (h, k) = (3, 0); r = 12
3) (h, k) = (1, −6); r = 7
4) $x^2 + y^2 - 4x + 6y + 4 = 0$
5) $y = -\frac{1}{12}x^2$
6) $(x - 3)^2 = -8(y - 4)$
7) $(y + 3)^2 = -12(x - 4)$
8)

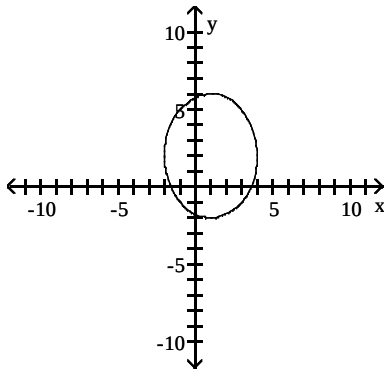


vertex: (4, 3)
focus: (4, 5)
directrix: y = 1

9) $(x - 3)^2 = -4(y + 2)$
10) 33.4 feet
11) $\frac{x^2}{9} + \frac{y^2}{25}$



12)



13) $\frac{(x-5)^2}{5}+\frac{(y+5)^2}{2}=1$

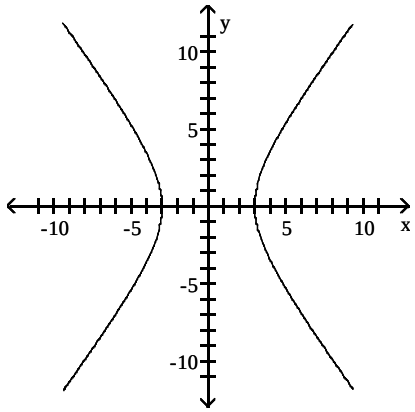
center: (5, –5); foci: (6.7, –5), (3.3, –5); vertices: (7.2, –5), (2.8, –5)

14) $\frac{(x+2)^2}{16}+\frac{(y+1)^2}{9}=1$

15) 61.52 feet

16) $\frac{x^2}{36}-\frac{y^2}{64}=1$

17)



$\frac{x^2}{9}-\frac{y^2}{16}=1$

18) center at (2, 1)
transverse axis is parallel to x–axis
vertices at (0, 1) and (4, 1)
foci at $(2-\sqrt{5}, 1)$ and $(2+\sqrt{5}, 1)$
asymptotes of $y-1=-\frac{1}{2}(x-2)$ and $y-1=\frac{1}{2}(x-2)$

19) $y=\frac{5}{3}x$ and $y=-\frac{5}{3}x$

20) $\frac{4(x+2)^2}{25}-\frac{(y+3)^2}{9}=1$