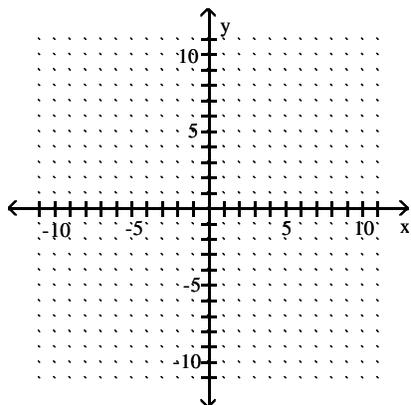


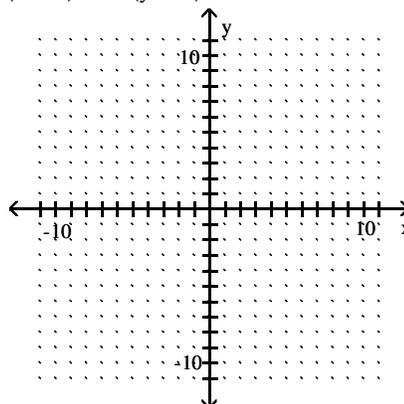
Graph the parabola.

1) $x = \frac{1}{4}y^2$

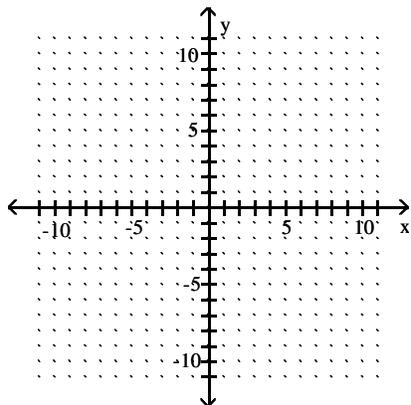


Graph the parabola.

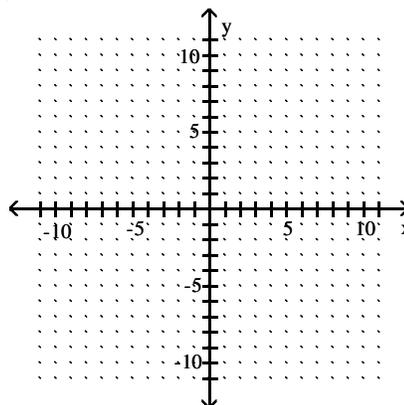
4) $(x + 3)^2 = 6(y - 3)$



2) $8y = -x^2$



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



Find the focus and directrix of the parabola.

3) $y^2 = -8x$

Find an equation of a parabola that satisfies the given conditions.

6) Vertex (8, 10), focus (8, 16)

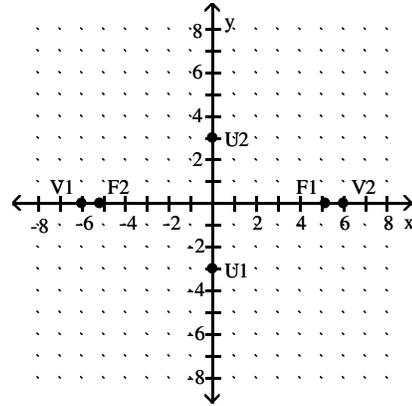
7) Vertex $(6, -3)$, focus $(9, -3)$

8) Focus $(10, -1)$, directrix $y = -3$

9) Focus $(-10, -4)$, directrix $x = -20$

Find the equation of the ellipse corresponding to the given information.

12) The foci F_1 and F_2 , the vertices V_1 and V_2 , and the endpoints U_1 and U_2 of the minor axis are as labeled in the figure.



Graph the ellipse satisfying the stated conditions.

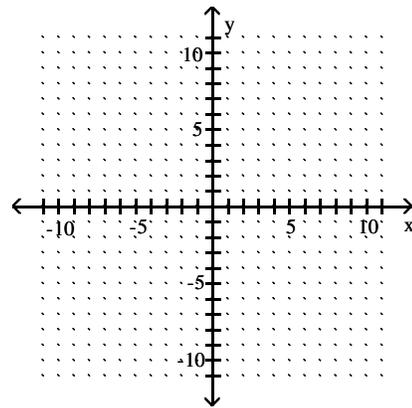
10) The equation is $9x^2 + y^2 = 9$.

Graph the ellipse.

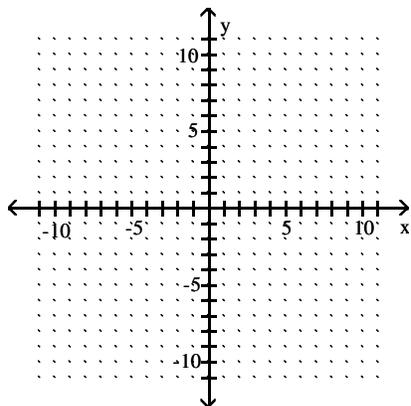
13) $\frac{(x + 5)^2}{25} + \frac{(y + 4)^2}{9} = 1$

Find the foci and endpoints of each axis for the given ellipse.

11) $16x^2 + 25y^2 = 400$



14) $\frac{(x - 1)^2}{25} + \frac{(y + 1)^2}{36} = 1$



Find the center and radius of the circle.

18) $(x - 1)^2 + (y + 5)^2 = 36$

19) $x^2 + y^2 + 10x + 2y = 55$

20) $x^2 - 14x + y^2 + 14y + 73 = 0$

Identify the vertices and foci.

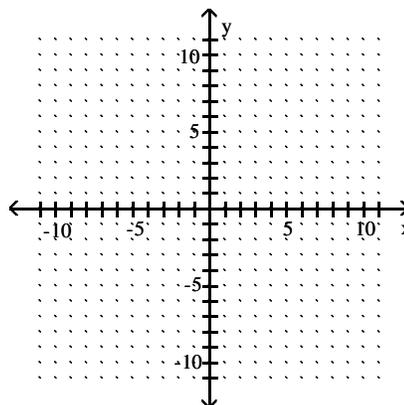
15) $\frac{(x - 2)^2}{64} + \frac{(y - 4)^2}{100} = 1$

Graph the equation.

21) $\frac{y^2}{64} - \frac{x^2}{25} = 1$

Find an equation for the indicated ellipse.

16) Center (3, 5), focus (3, 6), and vertex (3, 10)



Find the standard equation of the circle that satisfies the conditions.

17) Center (3, 22), containing the origin

Find the foci and asymptotes of the hyperbola.

$$22) \frac{y^2}{144} - \frac{x^2}{81} = 1$$

Find the standard equation of the indicated hyperbola.

$$26) \text{ Center } (-1, 5), \text{ focus } (-1, 10), \text{ vertex } (-1, 8)$$

Find the standard equation of the hyperbola.

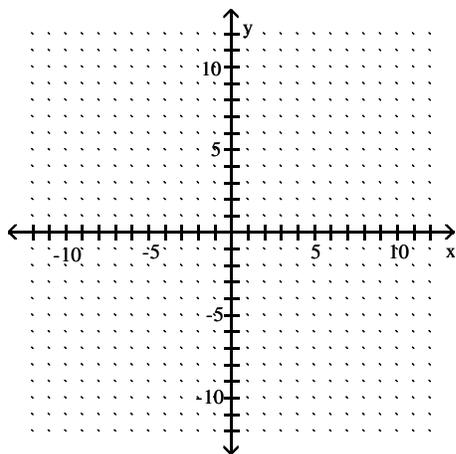
$$23) \text{ Foci at } (0, \pm 7), \text{ a conjugate axis with length } 6$$

Find the vertices and foci of the hyperbola.

$$27) \frac{(y - 5)^2}{9} - \frac{(x - 3)^2}{16} = 1$$

Graph the hyperbola.

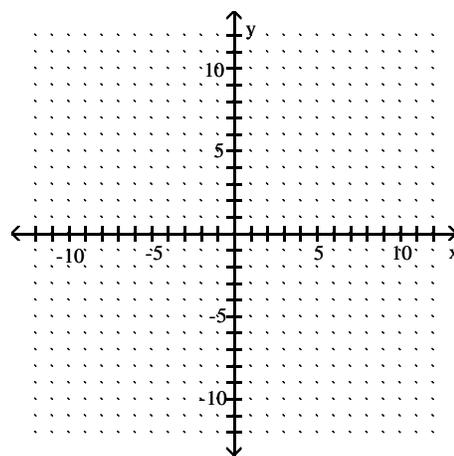
$$24) \frac{(x - 1)^2}{49} - \frac{(y - 2)^2}{4} = 1$$



$$28) \frac{(y + 2)^2}{144} - \frac{(x - 2)^2}{256} = 1$$

Graph the hyperbola.

$$29) \frac{(y - 3)^2}{9} - \frac{(x + 5)^2}{16} = 1$$



Find the vertices and foci of the hyperbola.

$$25) \frac{(x - 2)^2}{36} - \frac{(y + 2)^2}{64} = 1$$

Find the foci and asymptotes of the hyperbola.

$$30) \frac{x^2}{144} - \frac{y^2}{81} = 1$$

$$31) \frac{x^2}{225} - \frac{y^2}{400} = 1$$

Find the standard equation of the circle that satisfies the conditions.

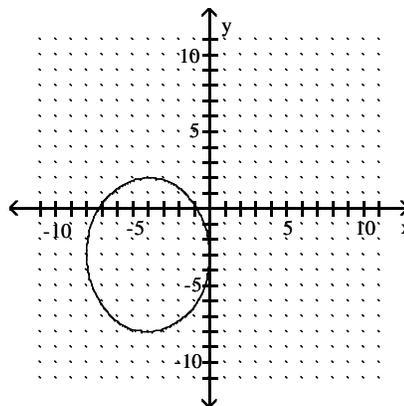
$$32) \text{ Center at } (-7, 7), \text{ radius } 4$$

$$33) \text{ Center at } (-7, -10), \text{ radius } \sqrt{6}$$

Find an equation for the indicated ellipse.

$$34) \text{ Vertices } (\pm 4, -3) \text{ and foci } (\pm 2, -3)$$

35)



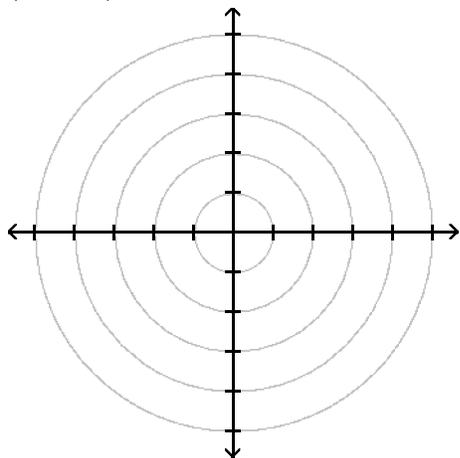
Identify the vertices and foci.

$$36) \frac{(x+1)^2}{625} + \frac{(y-1)^2}{400} = 1$$

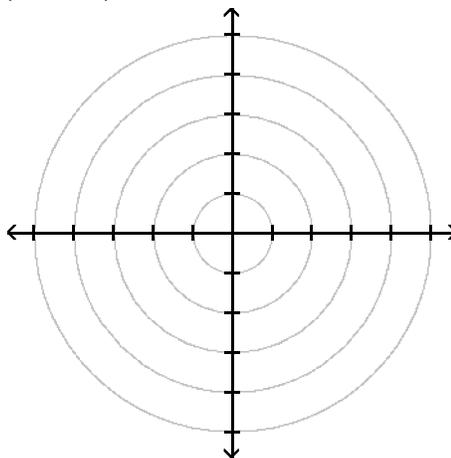
$$37) \frac{(x+2)^2}{144} + \frac{(y-4)^2}{400} = 1$$

Plot the point (r, θ) .

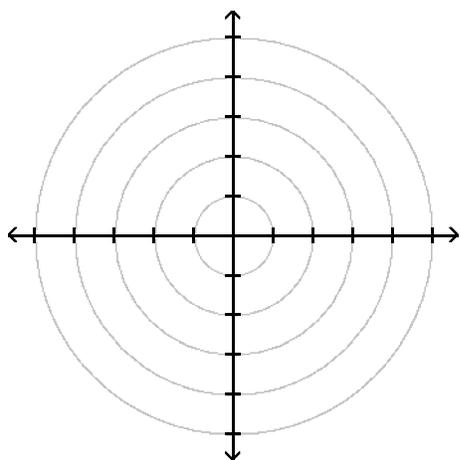
38) $(4, -135^\circ)$



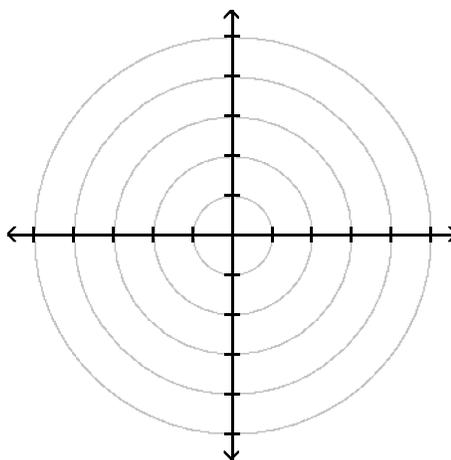
40) $(2, -3\pi/4)$



39) $(-2, 225^\circ)$



41) $(4, 5\pi/4)$



Determine if the given polar coordinates represent the same point.

42) $(5, 180^\circ), (5, -180^\circ)$

43) $(3, 130^\circ), (3, -50^\circ)$

49) $\left(4, \frac{3}{2}\pi\right)$

44) $(3, 0^\circ), (-3, 360^\circ)$

50) $(-8, 90^\circ)$

Change the given polar coordinates (r, θ) to rectangular coordinates (x, y) .

45) $(\sqrt{3}, \pi/6)$

51) $(1, 270^\circ)$

46) $(-9, 270^\circ)$

52) $(3, 30^\circ)$

47) $(-5, 4\pi/3)$

For the point given in rectangular coordinates, find equivalent polar coordinates (r, θ) for $r > 0$ and $0^\circ \leq \theta < 360^\circ$.

53) $(4\sqrt{3}, 4)$

48) $(8, 45^\circ)$

54) $(-3, 3\sqrt{3})$

For the point given in rectangular coordinates, find equivalent polar coordinates (r, θ) for $r > 0$ and $0 \leq \theta < 2\pi$. Approximate θ to the nearest hundredth of a radian.

55) $(8, -15)$

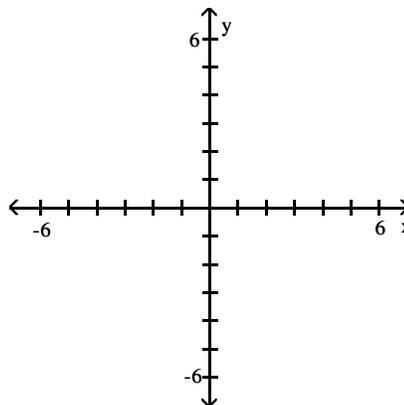
56) $(-15, -8)$

57) $(60, 11)$

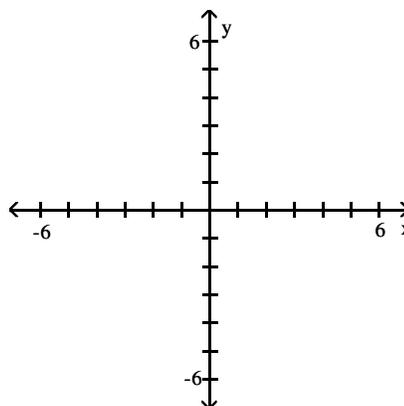
58) $(-8, 15)$

Graph the polar equation.

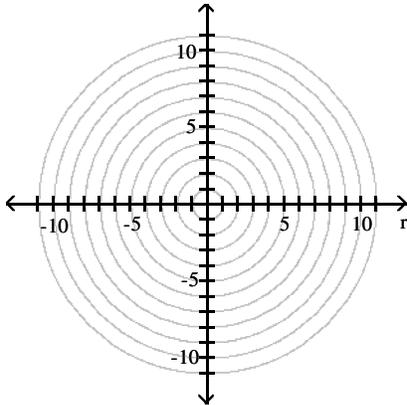
59) $r = 2 \sin \theta$



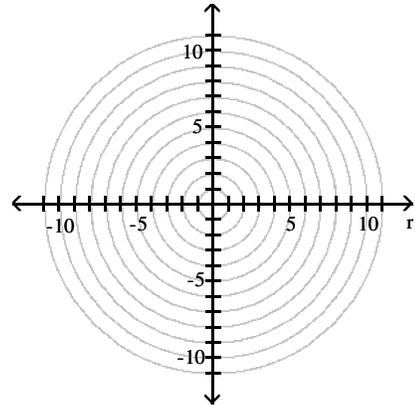
60) $r \sin \theta = 4$



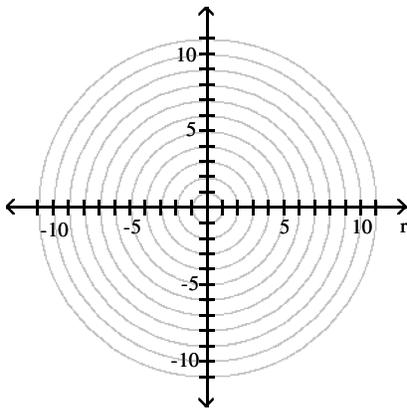
61) $r = 6 + 6 \sin \theta$



63) $r = 7 \sin 2\theta$



62) $r = 2(1 + 2 \sin \theta)$



Write the equation in polar coordinates.

64) $2x + 3y = 6$

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

66) $xy = 1$

Find an equivalent equation in rectangular coordinates.

67) $r(1 - 2 \cos \theta) = 1$

68) $r = \frac{5}{1 + \cos \theta}$

69) $r = \cos \theta$

With your calculator set to radian mode and polar graphics capability, graph the following function in the window specified.

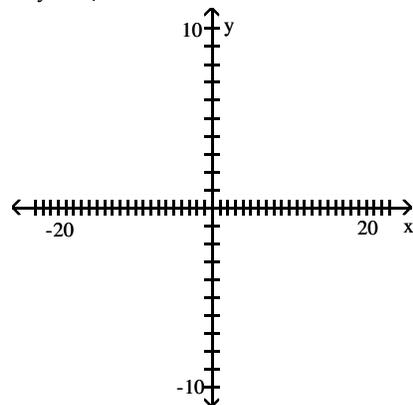
70) $r = 2 - 2 \sin \theta, -2\pi \leq \theta \leq 2\pi, [-4, 4]$ by $[-4, 4]$

71) $r = 2\theta, -3\pi \leq \theta \leq 3\pi, [-20, 20]$ by $[-20, 20]$

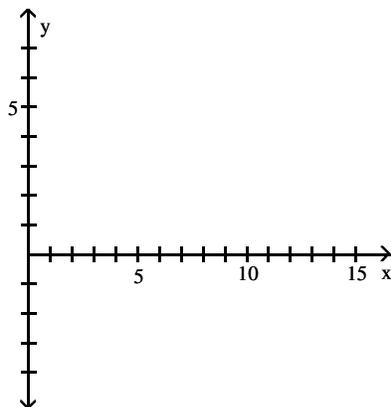
72) $r = 2 \sin 3\theta, 0 \leq \theta \leq 2\pi, [-2, 2]$ by $[-2, 2]$

Graph each pair of parametric equations.

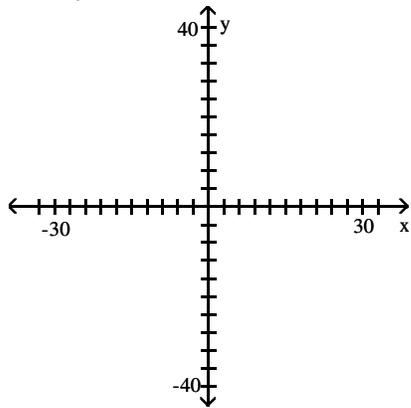
73) $x = t^2, y = \sqrt{t + 2}; 0 \leq t \leq 4$



74) $x = t^2, y = 2 \ln t; 0 < t < \infty$



75) $x = t^3 + 1, y = t^3 - 10; -2 \leq t \leq 2$

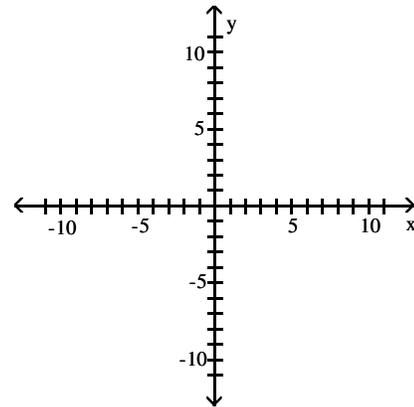


Describe the curve defined by the given parametric equations.

79) $x = 4 \cos t, y = 4 \sin t; 0 \leq t \leq \pi$

Graph the parametric equations.

80) $x = t + 2, y = (t+1)^2; 0 \leq t \leq 2$



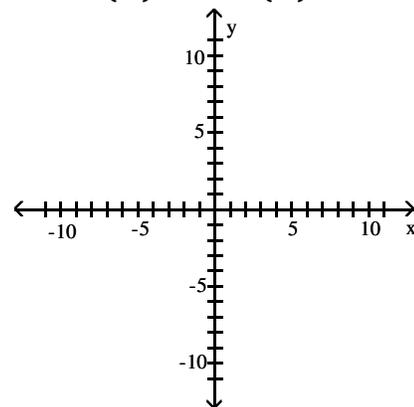
Find a rectangular equation for the curve with the given parametric equations.

76) $x = \sin \theta, y = 3 \cos \theta$

77) $x = t - 3, y = t^2 + 5$

81) $x = 6 \cos \left(\frac{1}{2}t \right), y = 6 \sin \left(\frac{1}{2}t \right); 0 \leq t \leq 2\pi$

78) $x = \sec t, y = \tan t$



Describe the curve defined by the given parametric equations.

$$82) x = t - 4, y = t^2 + 3; -5 \leq t \leq 5$$

$$83) x = t - 5, y = t^2 + 8; -5 \leq t \leq 5$$

Convert the given equation to parametric equations.

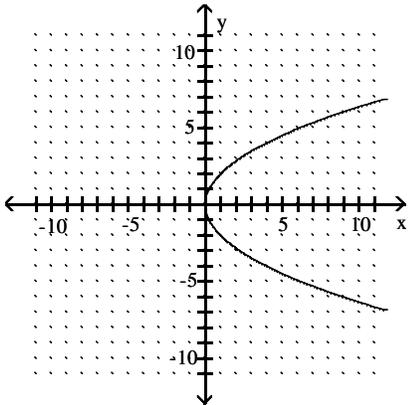
$$84) e^x = y^4 + 2$$

$$85) 5x + 9y = 7$$

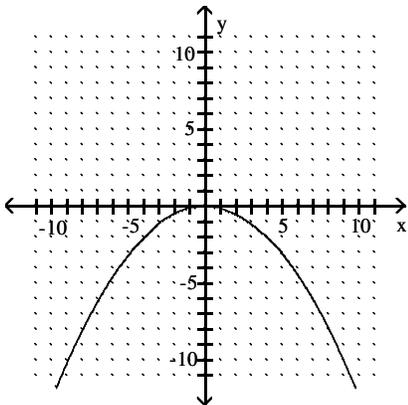
$$86) x^2 + y^2 = 81$$

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1)

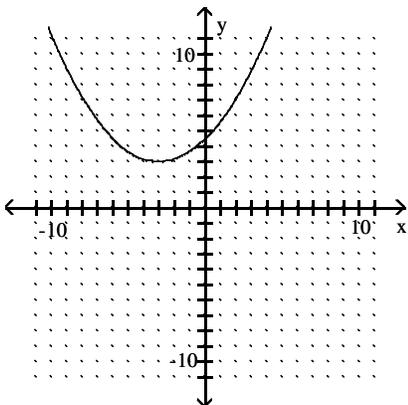


2)

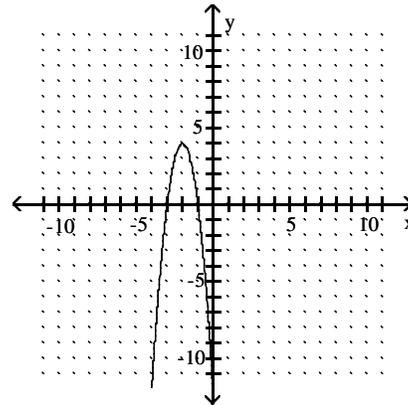


3) $(-2, 0), x = 2$

4)



5)



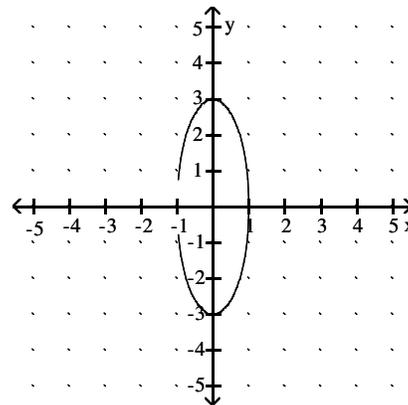
6) $24(y - 10) = (x - 8)^2$

7) $(x - 6) = \frac{(y + 3)^2}{12}$

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

9) $(y + 4)^2 = 20(x + 15)$

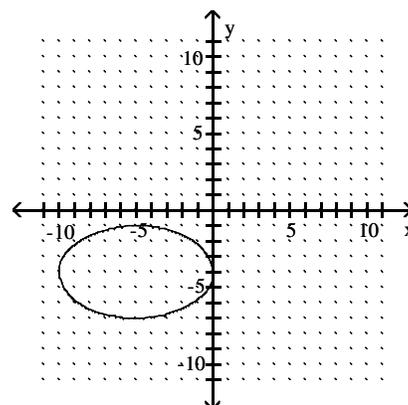
10)



11) Foci: $(\pm\sqrt{9}, 0)$; vertices: $(\pm 5, 0)$;
 endpoints of the minor axis: $(0, \pm 4)$

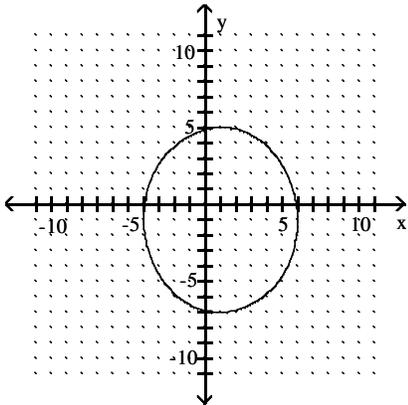
12) $\frac{x^2}{36} + \frac{y^2}{9} = 1$

13)



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14)



15) $(2, -6), (2, 14); (2, -2), (2, 10)$

16) $\frac{(x-3)^2}{24} + \frac{(y-5)^2}{25} = 1$

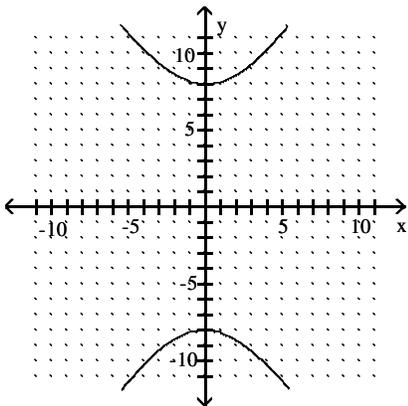
17) $(x-3)^2 + (y-22)^2 = 493$

18) $(1, -5), r = 6$

19) $(-5, -1), r = 9$

20) $(7, -7), r = 5$

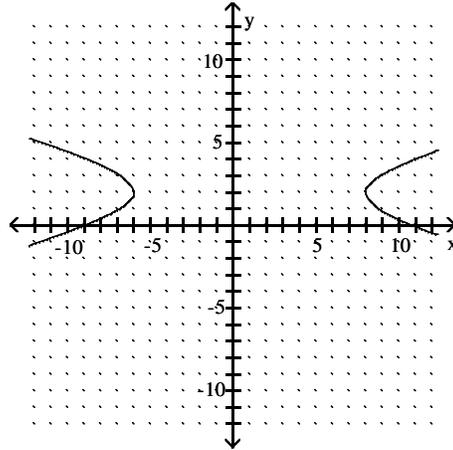
21)



22) $(0, -15), (0, 15); y = \frac{4}{3}x, y = -\frac{4}{3}x$

23) $\frac{y^2}{40} - \frac{x^2}{9} = 1$

24)



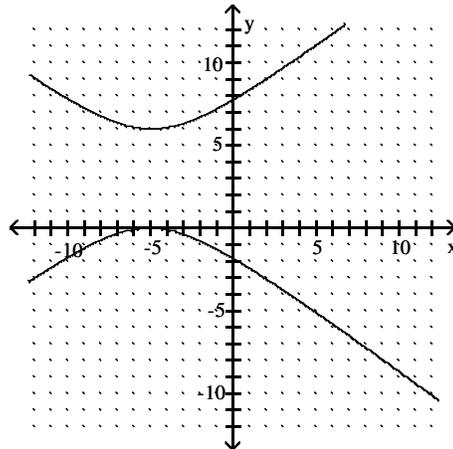
25) Vertices: $(8, -2), (-4, -2)$; Foci: $(-8, -2), (12, -2)$

26) $\frac{(y-5)^2}{9} - \frac{(x+1)^2}{16} = 1$

27) Vertices: $(3, 8), (3, 2)$; Foci: $(3, 10), (3, 0)$

28) Vertices: $(2, 10), (2, -14)$; Foci: $(2, 18), (2, -22)$

29)



30) $(-15, 0), (15, 0); y = \frac{3}{4}x, y = -\frac{3}{4}x$

31) $(-25, 0), (25, 0); y = \frac{4}{3}x, y = -\frac{4}{3}x$

32) $(x+7)^2 + (y-7)^2 = 16$

33) $(x+7)^2 + (y+10)^2 = 6$

34) $\frac{x^2}{16} + \frac{(y+3)^2}{12} = 1$

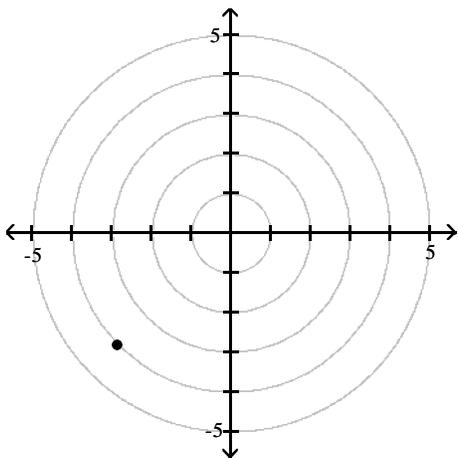
35) $\frac{(x+4)^2}{16} + \frac{(y+3)^2}{25} = 1$

36) $(-26, 1), (24, 1); (-16, 1), (14, 1)$

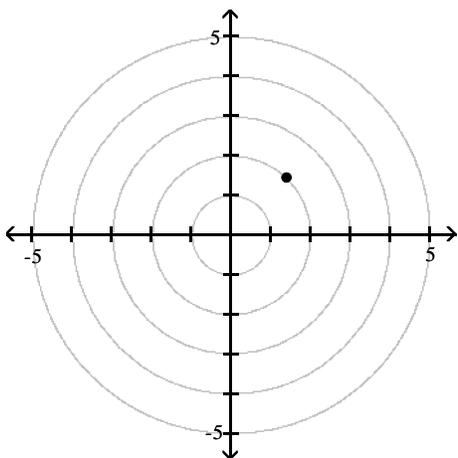
37) $(-2, -16), (-2, 24); (-2, -12), (-2, 20)$

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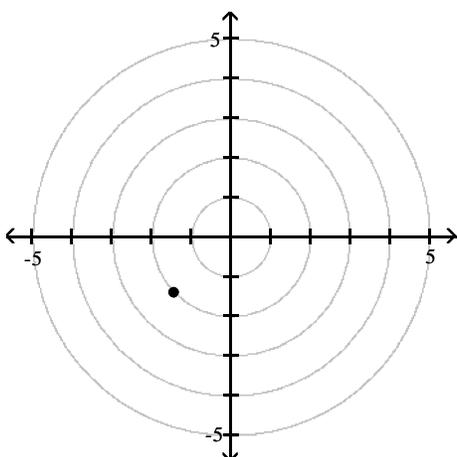
38)



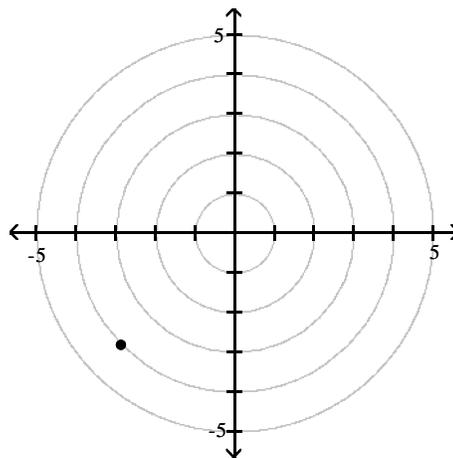
39)



40)



41)



42) Yes

43) No

44) No

45) $\left(\frac{3}{2}, \frac{\sqrt{3}}{2}\right)$

46) $(0, 9)$

47) $\left(\frac{5}{2}, \frac{5\sqrt{3}}{2}\right)$

48) $(4, 4\sqrt{3})$

49) $(0, -4)$

50) $(-4\sqrt{2}, -4\sqrt{2})$

51) $(0, -1)$

52) $\left(\frac{3\sqrt{3}}{2}, \frac{3}{2}\right)$

53) $(8, 30^\circ)$

54) $(6, 120^\circ)$

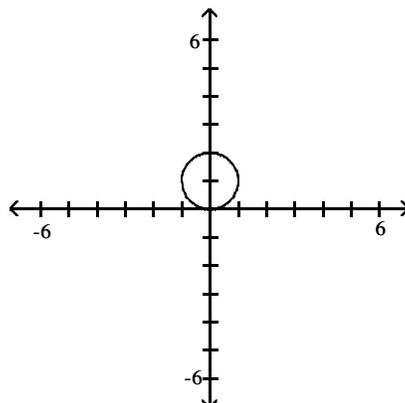
55) $(17, 5.20)$

56) $(17, 3.63)$

57) $(61, 0.18)$

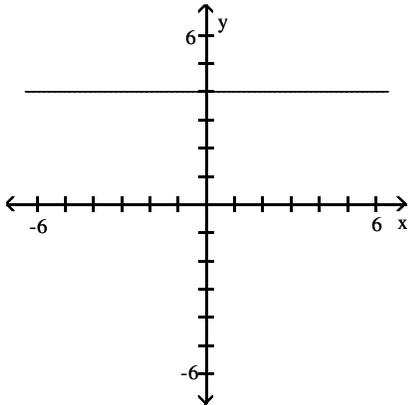
58) $(17, 2.06)$

59)

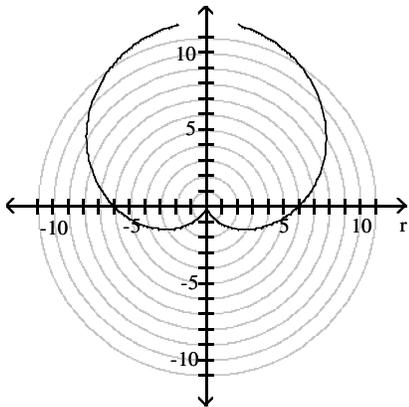


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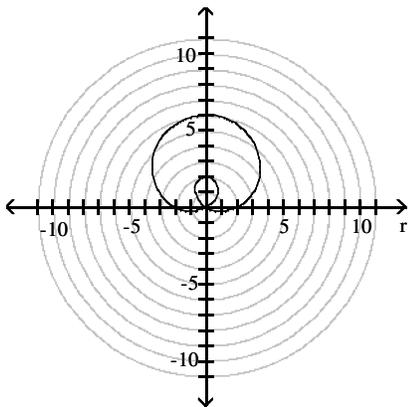
60)



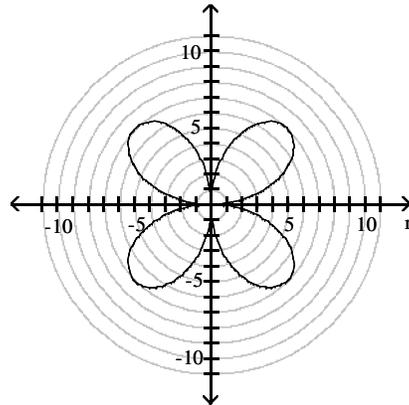
61)



62)



63)



64) $r(2 \cos \theta + 3 \sin \theta) = 6$

65) $r^2 \cos 2\theta = 4$

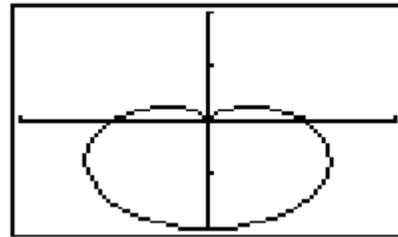
66) $r^2 \sin 2\theta = 2$

67) $\sqrt{x^2 + y^2} = 1 + 2x$

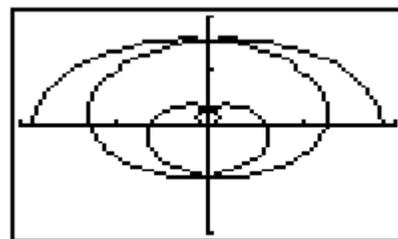
68) $y^2 = 25 - 10x$

69) $x^2 + y^2 = x$

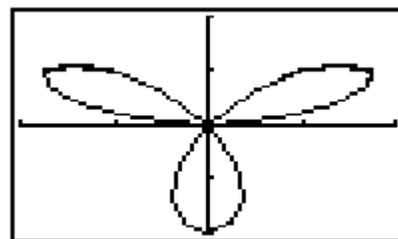
70)



71)

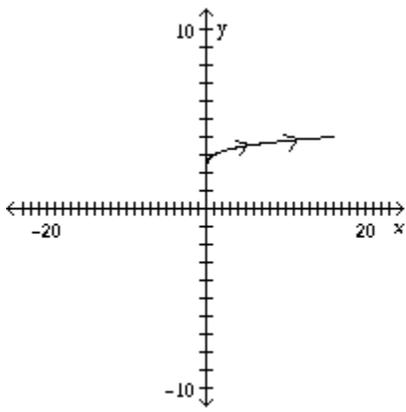


72)

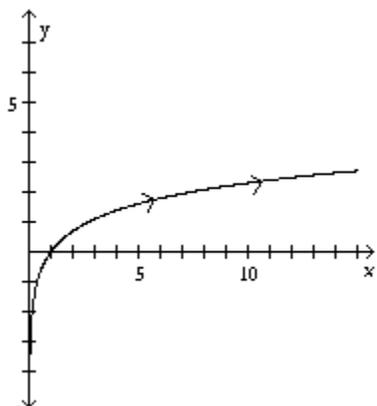


Answer Key
 Testname: CH8PRAC

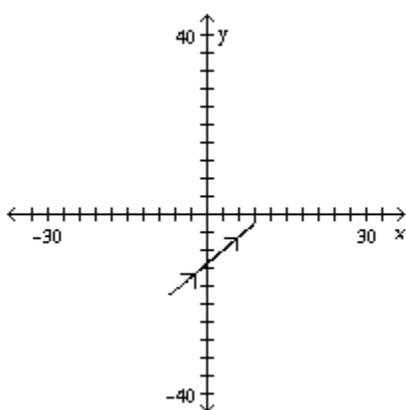
73)



74)



75)



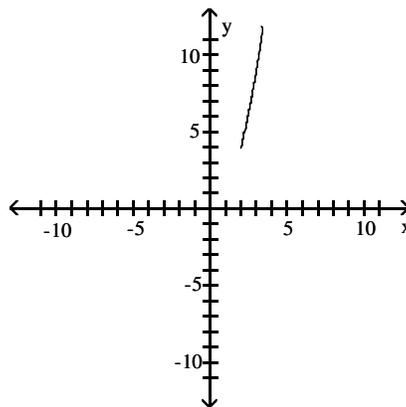
76) $9x^2 + y^2 = 9$

77) $y = x^2 + 6x + 14$

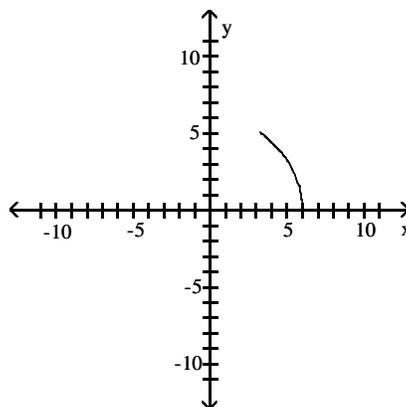
78) $x^2 - y^2 = 1$

79) Upper portion of a circle

80)



81)



82) Lower portion of a parabola

83) Lower portion of a parabola

84) $x = \ln(t^4 + 2), y = t$

85) $x = t, y = \frac{7}{9} - \frac{5}{9}t$

86) $x = 9\cos t, y = 9\sin t$