

Precalculus G11 Ch7 H.W.

Indicate the answer choice that best completes the statement or answers the question.

1. Determine the eccentricity of the ellipse given by $9x^2 + 16y^2 - 72x + 64y - 368 = 0$.

- a. 0.66 b. 0.60
c. 1.51 d. 0.88

2. Identify the conic given by $\frac{(x-10)^2}{36} - \frac{(y-9)^2}{36} = 1$

- a. parabola b. ellipse
c. hyperbola d. circle

3. Write the equation for the hyperbola with foci (4, 8), (4, 14) and vertices (4, 9), (4, 13).

- a. $\frac{(y-11)^2}{4} + \frac{(x-4)^2}{5} = 1$ b. $\frac{(x-4)^2}{4} - \frac{(y-11)^2}{5} = 1$
c. $\frac{(y-11)^2}{2} - \frac{(x-4)^2}{2.24} = 1$ d. $\frac{(y-11)^2}{4} - \frac{(x-4)^2}{5} = 1$

4. Write the equation for the hyperbola with foci (0, 6), (0, -4) and a length of transverse axis of 8 units.

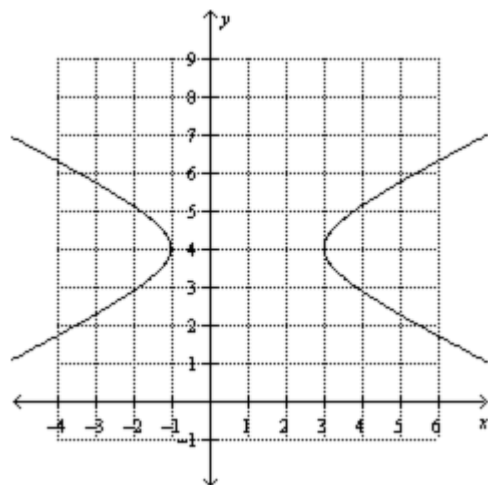
- a. $\frac{(y-1)^2}{4} - \frac{x^2}{3} = 1$ b. $\frac{(x-1)^2}{16} - \frac{y^2}{9} = 1$
c. $\frac{(y-1)^2}{16} - \frac{x^2}{9} = 1$ d. $\frac{(y-1)^2}{9} - \frac{x^2}{16} = 1$

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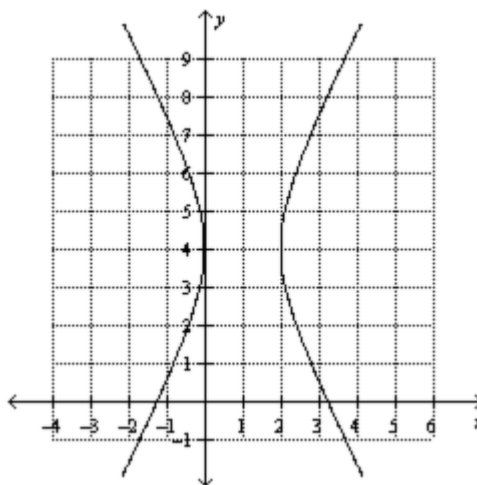
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5. Graph the hyperbola given by $x^2 - 4y^2 - 2x + 32y - 67 = 0$.

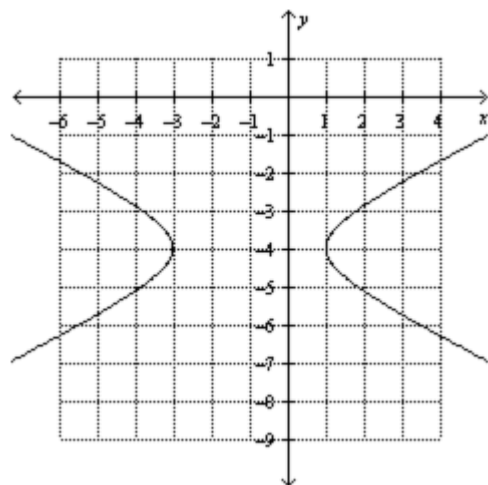
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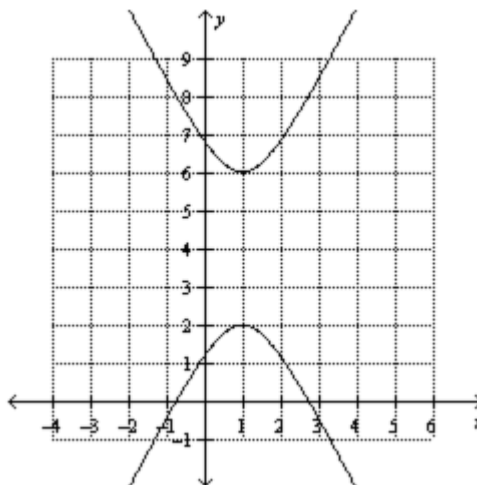
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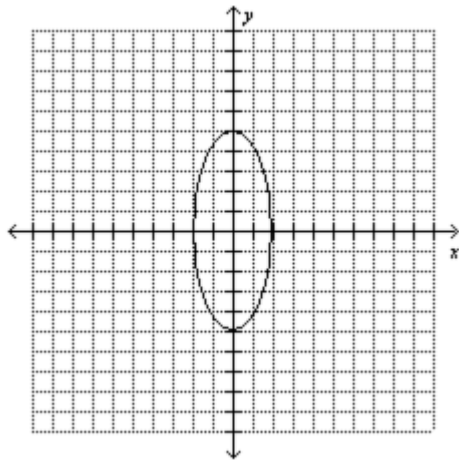


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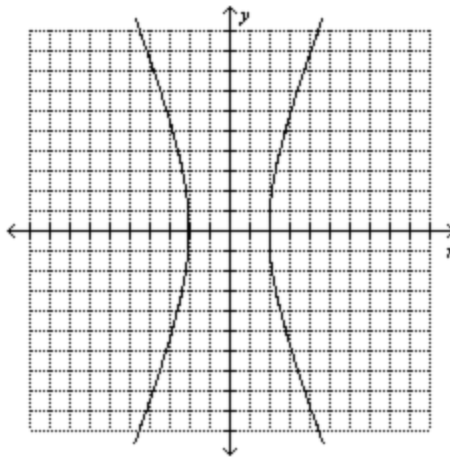
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6. Graph $\frac{x^2}{4} - \frac{y^2}{25} = 1$.

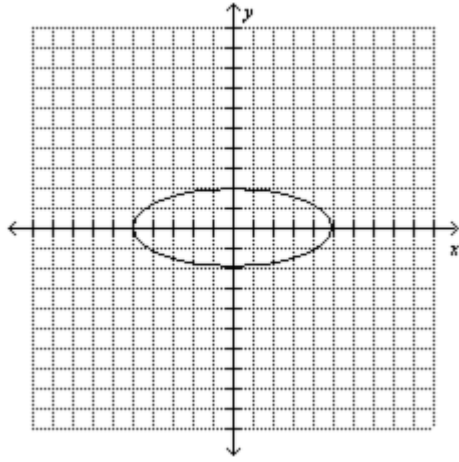
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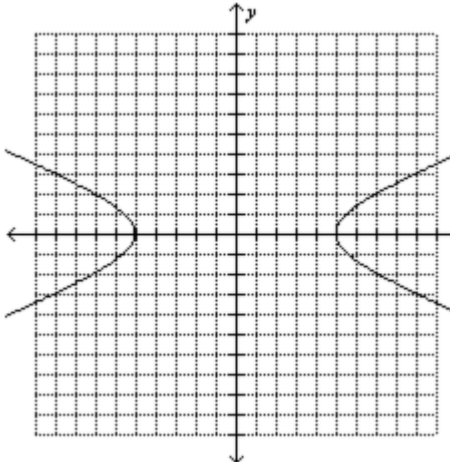
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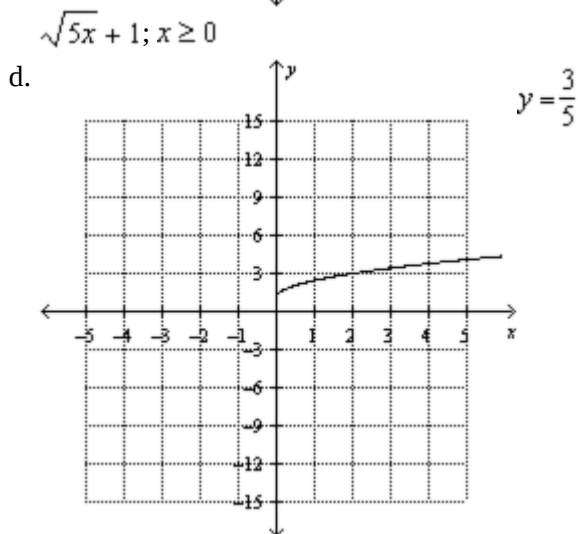
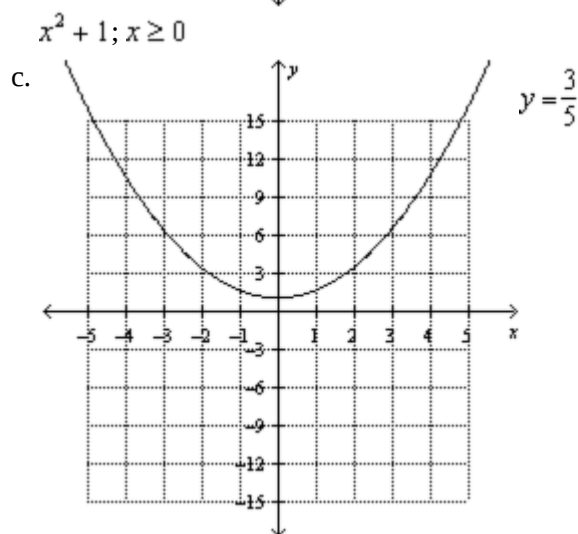
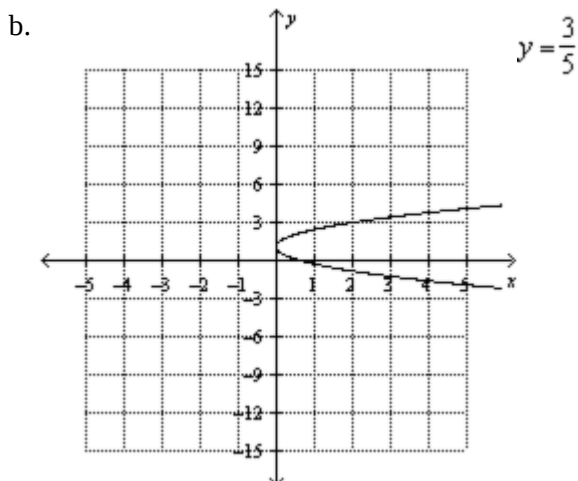
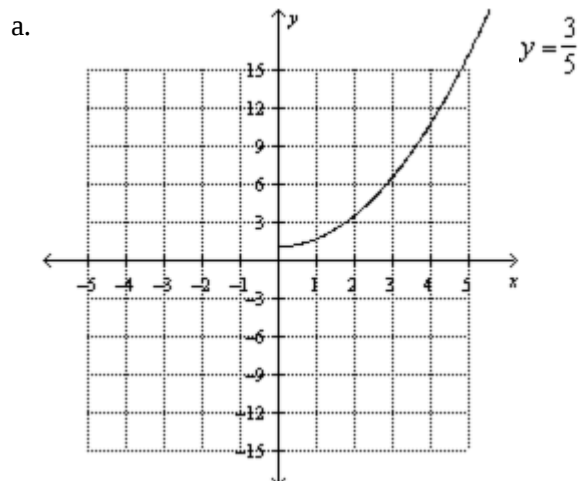


d.



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7. Write $y = \frac{t+3}{t}$ and $x = \frac{5}{\sqrt{t}}$ in rectangular form. Then graph the equation and state any restrictions on the domain.



$x^2 + 1; x \geq 0$

$\sqrt{5x + 1}; x \geq 0$

8. Determine the orientation of the parabola.

directrix: $x = -4$; $p = -3$

- a. opens down b. opens left
- c. opens right d. opens up

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9. Write the standard form of the equation for the circle that passes through the points $(-10, 33)$, $(-10, -15)$, $(21, 16)$. Then identify the center and radius.

a. $(x - 6)^2 + (y - 5)^2 = 625$; center $(6, 5)$, $r = 25$

b. $(x - 6)^2 + (y + 7)^2 = 25$; center $(-3, 9)$, $r = 25$

c. $(x - 6)^2 + (y + 7)^2 = 25$; center $(-6, 7)$, $r = 5$

d. $(x + 3)^2 + (y - 9)^2 = 625$; center $(-6, 7)$, $r = 5$

10. Identify the conic given by $\frac{(x - 8)^2}{64} - \frac{(y - 9)^2}{4} = 1$

a. ellipse b. hyperbola

c. parabola d. circle

11. Write an equation for the conic in the xy -plane for $\frac{(x')^2}{21} - \frac{(y')^2}{17} = 1$ at $\theta = 45^\circ$.

a. $-4x^2 + 36\sqrt{3}xy + 4y^2 + 714 = 0$

b. $-4x^2 + 76\sqrt{3}xy - 4y^2 - 714 = 0$

c. $30x^2 + 76\sqrt{3}xy - 46y^2 - 1428 = 0$

d. $-46x^2 + 76\sqrt{3}xy + 30y^2 - 1428 = 0$

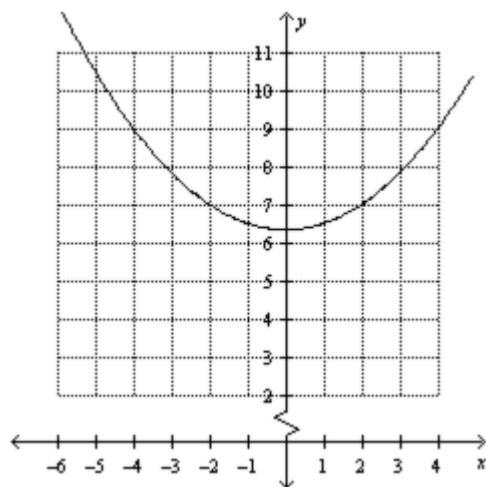
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12. Sketch the curve given by the set of parametric equations.

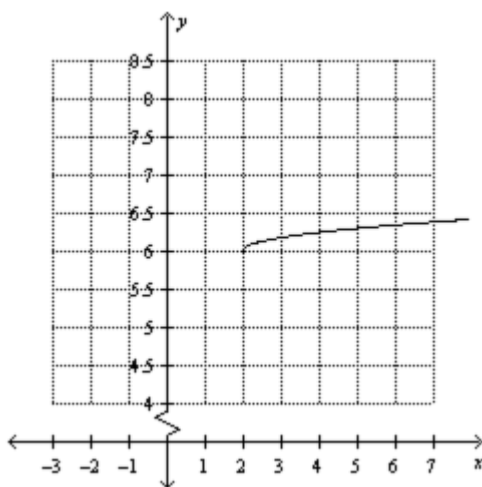
$$x = t^2 + 2$$

$$y = \frac{t}{6} + 6$$

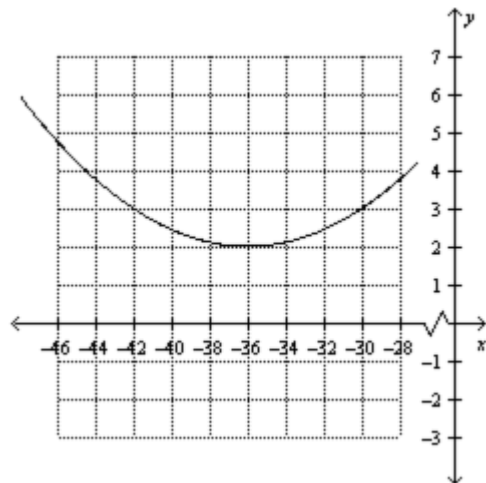
a.



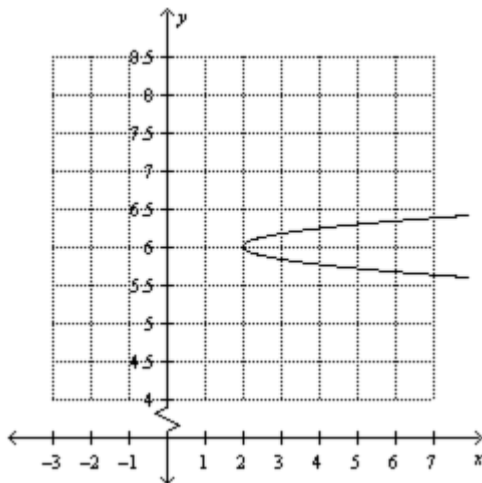
b.



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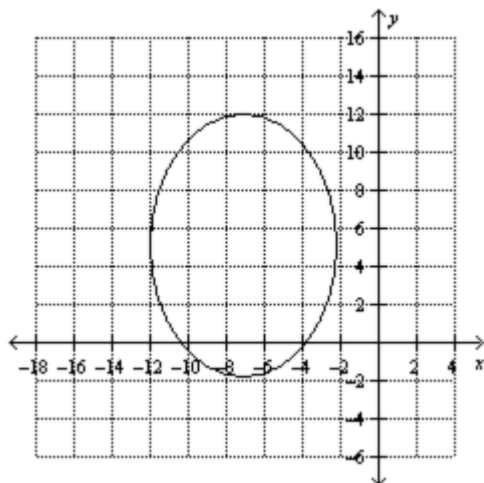
d.



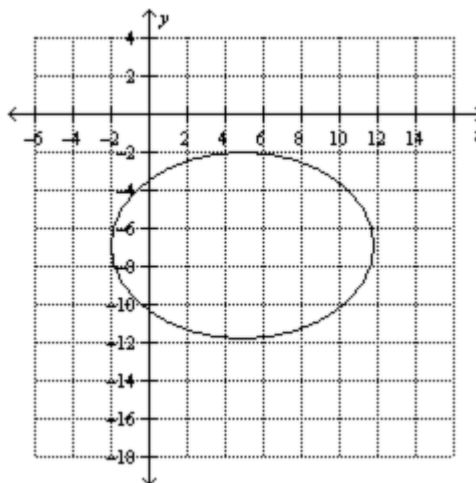
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13. Identify the graph of the ellipse given by $\frac{(x+7)^2}{49} + \frac{(y-5)^2}{25} = 1$

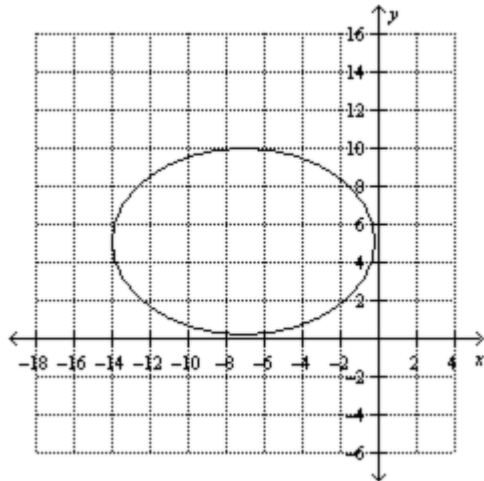
a.



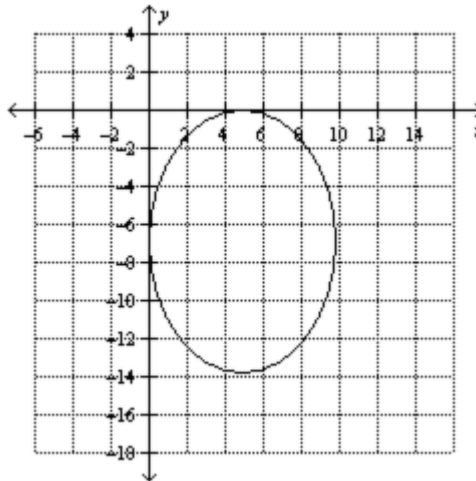
b.



c.



d.



14. Write the equation of the parabola $y = x^2 + 16x - 100$ in standard form.

a. $y + 64 = (x + 8)^2$

b. $y + 164 = (x + 8)^2$

c. $y + 8 = (x + 8)^2$

d. $y + 100 = (x + 8)^2$

15. Write an equation for the conic in the xy -plane for $\frac{(x')^2}{6} - \frac{(y')^2}{19} = 1$ at $\theta = 60^\circ$.

a. $x^2 + 50\sqrt{3}xy + 51y^2 - 456 = 0$

b. $13x^2 + 50\sqrt{3}xy + 13y^2 - 228 = 0$

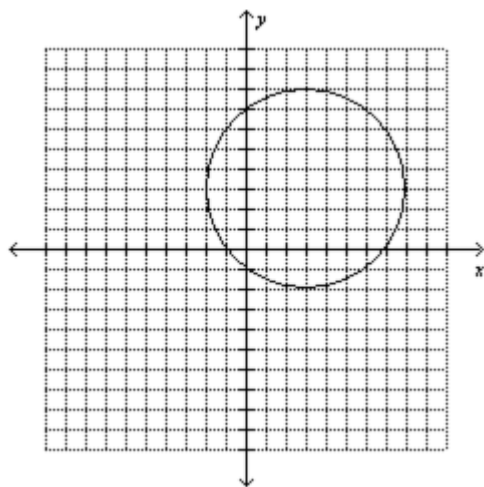
c. $x^2 + 30\sqrt{3}xy + 51y^2 - 456 = 0$

d. $51x^2 + 50\sqrt{3}xy + y^2 - 456 = 0$

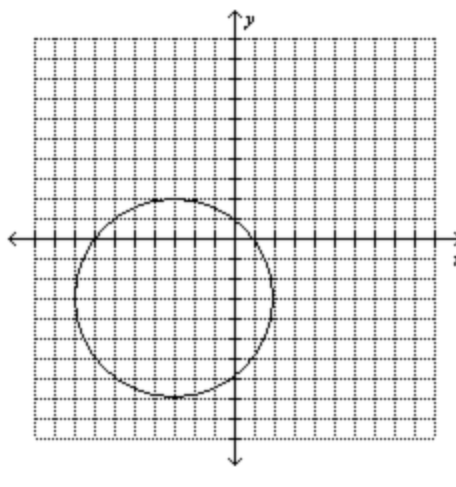
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16. Sketch the graph of $(x + 3)^2 + (y - 3)^2 = 25$.

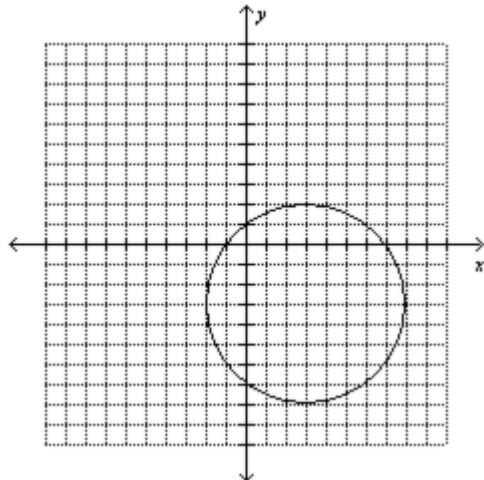
a.



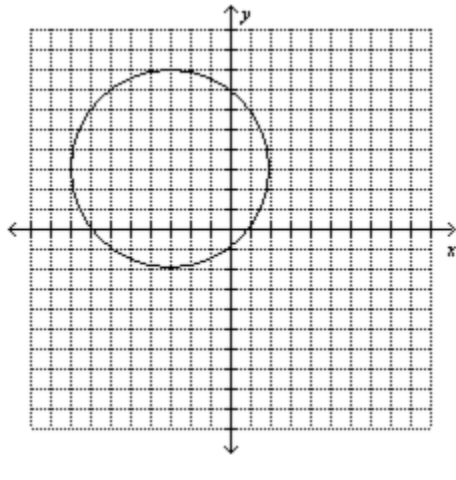
b.



c.



d.



17. Determine the orientation of the parabola.

directrix: $y = 3$; $p = -2$

- a. opens right b. opens down
- c. opens up d. opens left

18. Determine the orientation of the parabola.

directrix: $y = -3$; $p = -1$

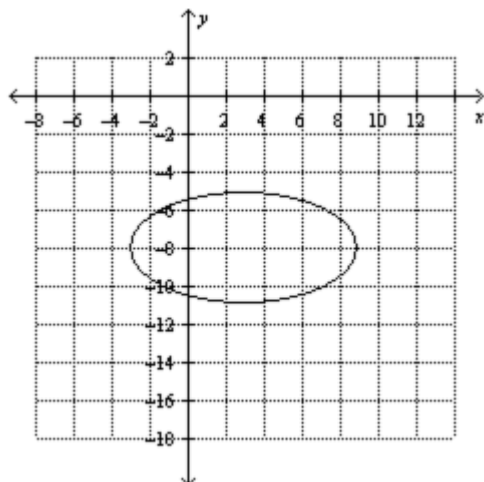
- a. opens right b. opens left
- c. opens up d. opens down

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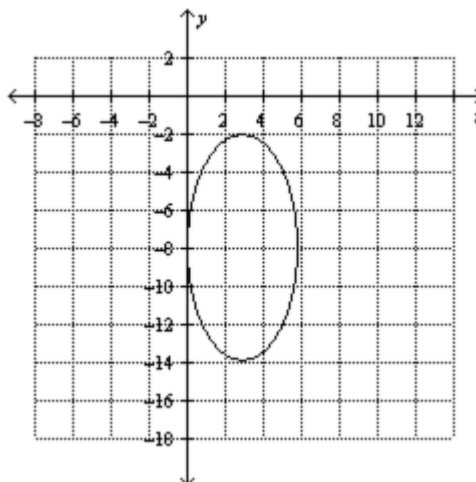
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19. Identify the graph of the ellipse given by $\frac{(x-3)^2}{9} + \frac{(y+8)^2}{36} = 1$

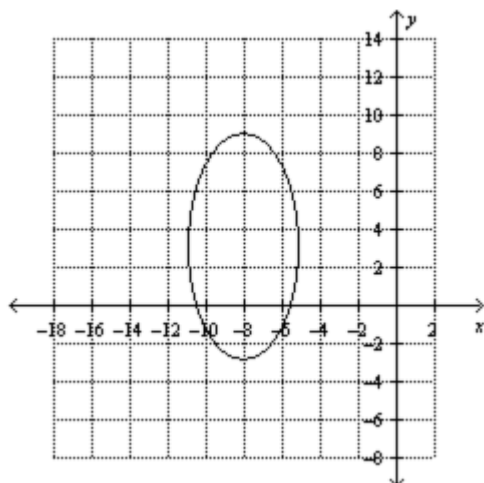
a.



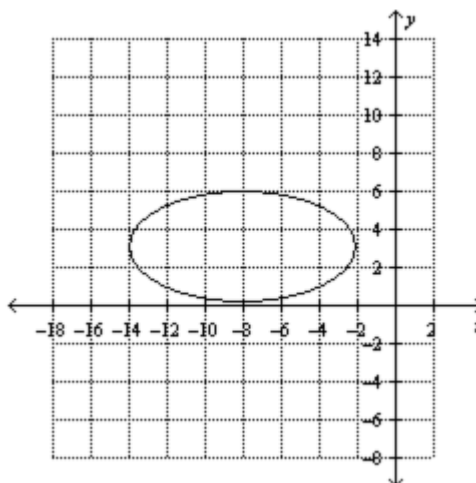
b.



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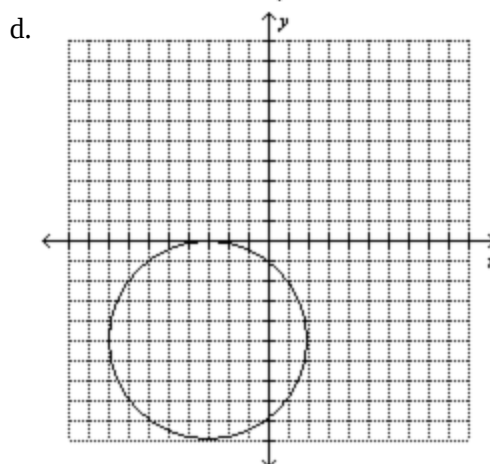
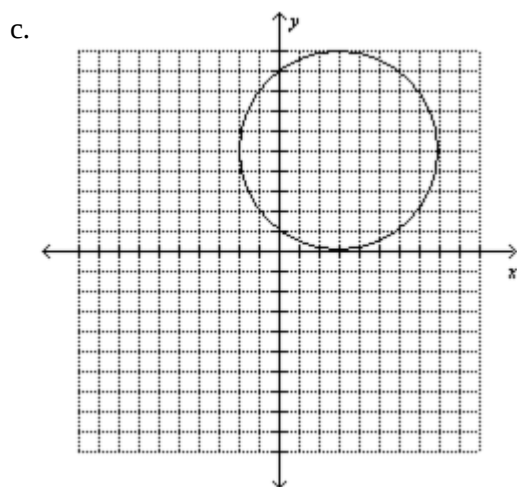
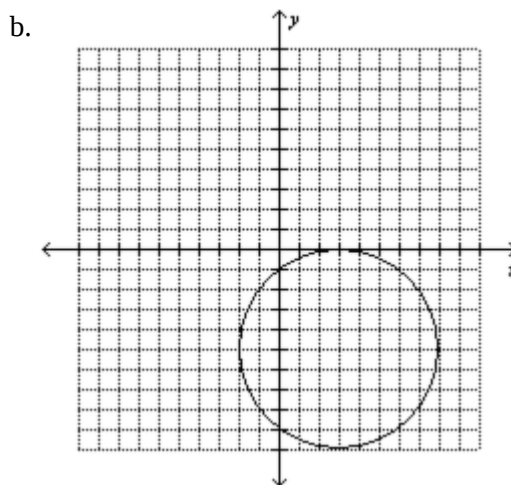
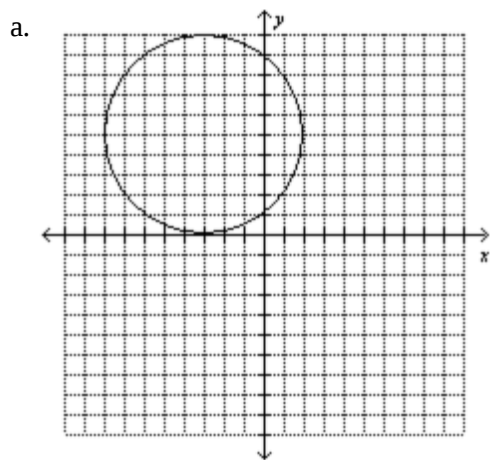
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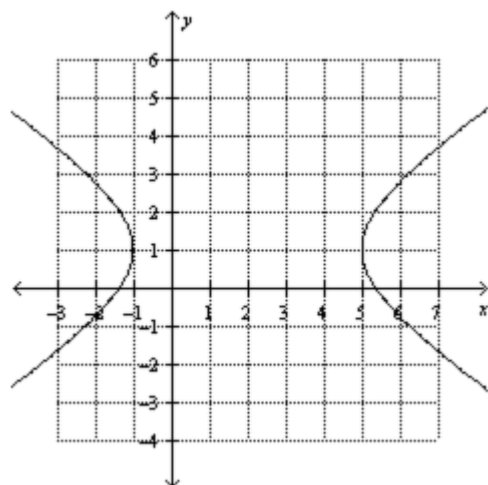
20. Sketch the graph of $(x+3)^2 + (y-5)^2 = 25$.



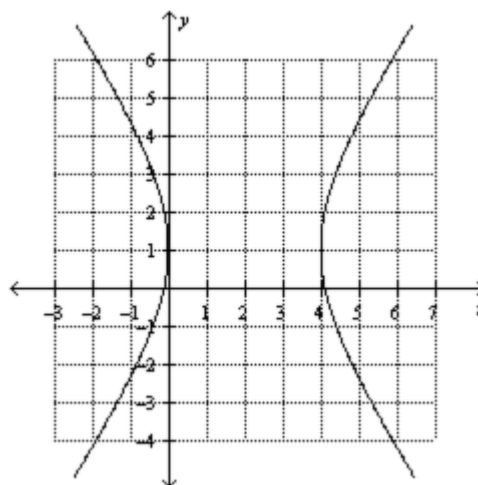
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21. Graph the hyperbola given by $9x^2 - 4y^2 - 36x + 8y - 4 = 0$.

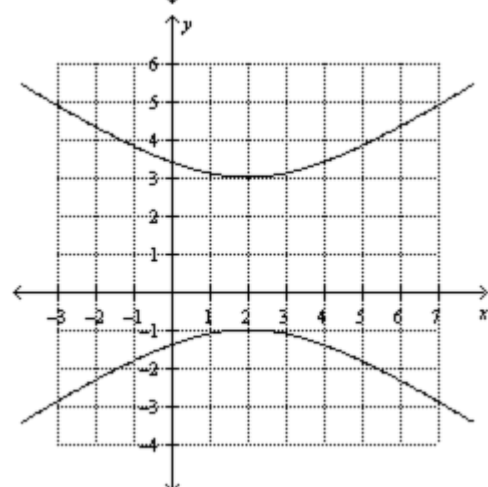
a.



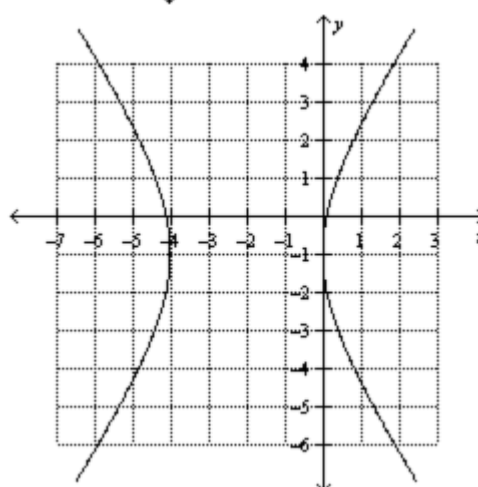
b.



c.



d.



22. Write the equation for the hyperbola with foci $(1, -5)$, $(9, -5)$ and conjugate axis of length 6.

a.

$$\frac{(x-5)^2}{7} - \frac{(y+5)^2}{9} = 1$$

b.

$$\frac{(y+5)^2}{7} - \frac{(x-5)^2}{9} = 1$$

c.

$$\frac{(x-5)^2}{9} - \frac{(y+5)^2}{7} = 1$$

d.

$$\frac{(y+5)^2}{9} - \frac{(x-5)^2}{7} = 1$$

23. Write the equation for the graph with vertex $(-10, 5)$ and focus $(-8.25, 5)$.

a.

$$(x+10)^2 = 7(y+5)$$

b.

$$(y-5)^2 = 7(x+10)$$

c.

$$(y+10)^2 = 7(x-5)$$

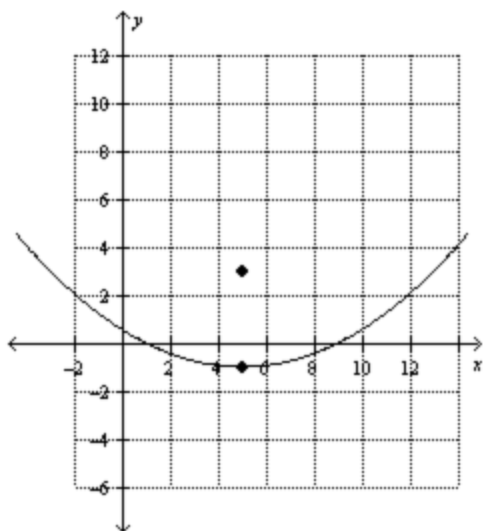
d.

$$(y-10)^2 = -7(x+10)$$

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24. Identify the equation of the graph shown.



- a. $(x - 5)^2 = 16(y + 1)^2$ b. $(x + 1)^2 = 16(y - 5)$
c. $(x - 5)^2 = 16(y + 1)$ d. $(x - 5)^2 = 4(y + 1)$

25. Write the equation of the ellipse $4x^2 + 9y^2 + 72x + 108y + 612 = 0$ in standard form.

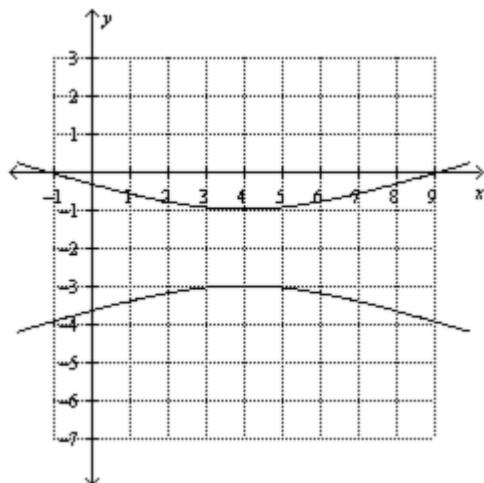
- a. $(x + 9)^2 + (y + 6)^2 = 36$ b. $\frac{(x - 9)^2}{9} + \frac{(y - 6)^2}{4} = 1$
c. $\frac{(x + 9)^2}{4} + \frac{(y + 6)^2}{9} = 1$ d. $\frac{(x + 9)^2}{9} + \frac{(y + 6)^2}{4} = 1$

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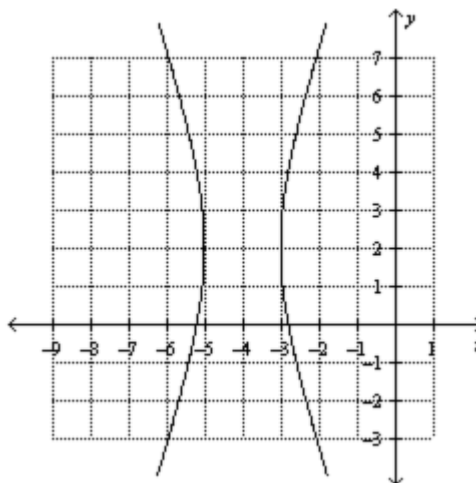
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26. Graph the hyperbola given by $9x^2 - y^2 - 72x - 4y + 131 = 0$.

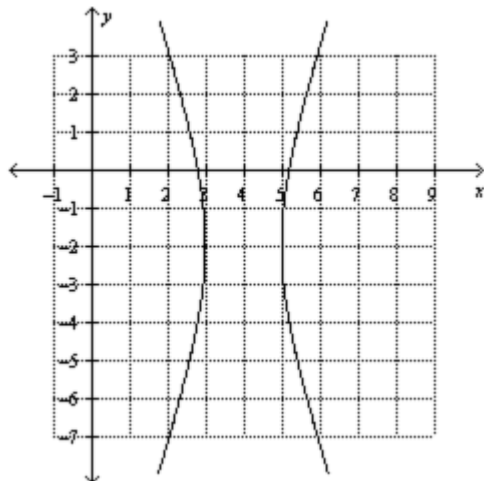
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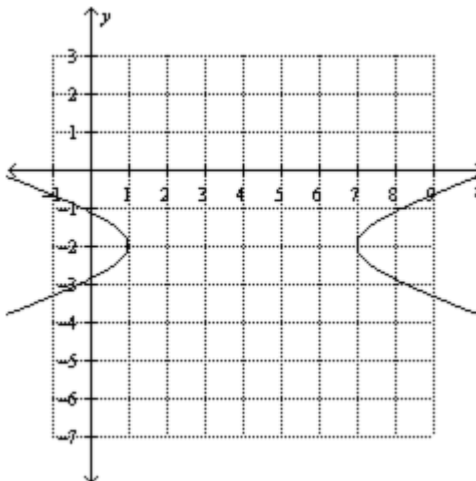
b.



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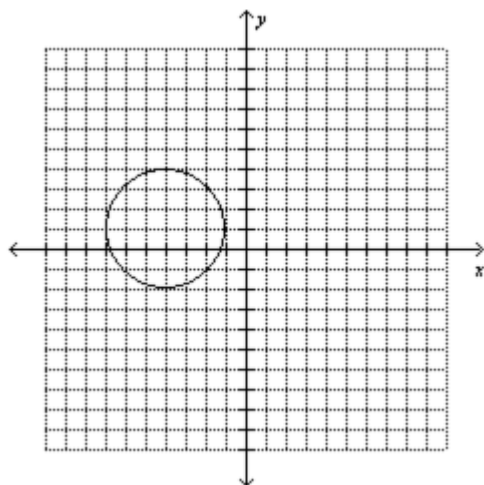


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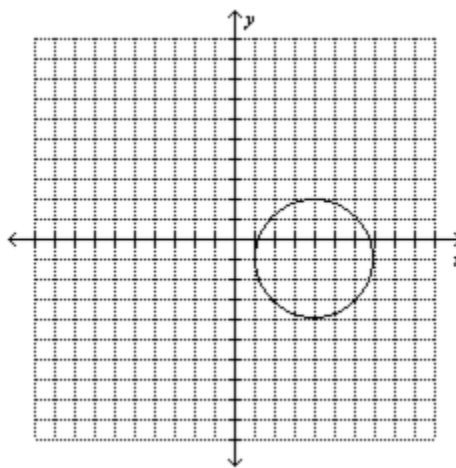
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27. Sketch the graph of $(x-4)^2 + (y-1)^2 = 9$.

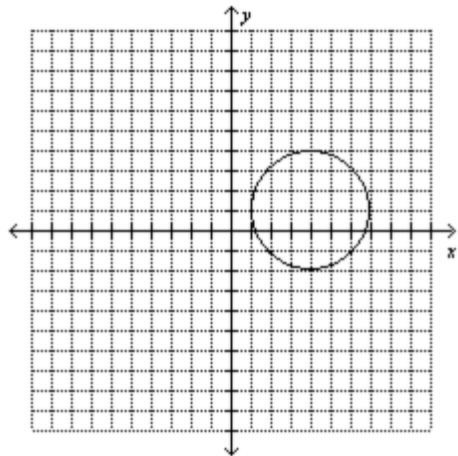
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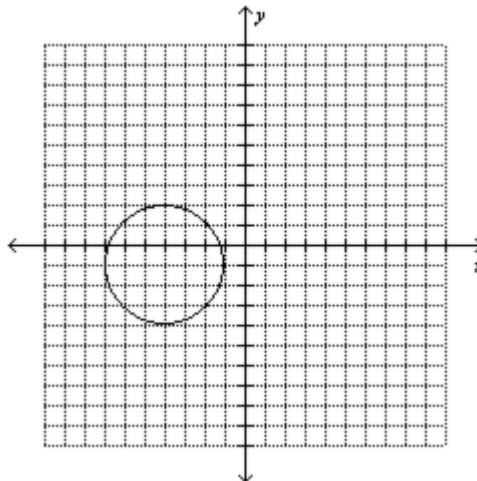
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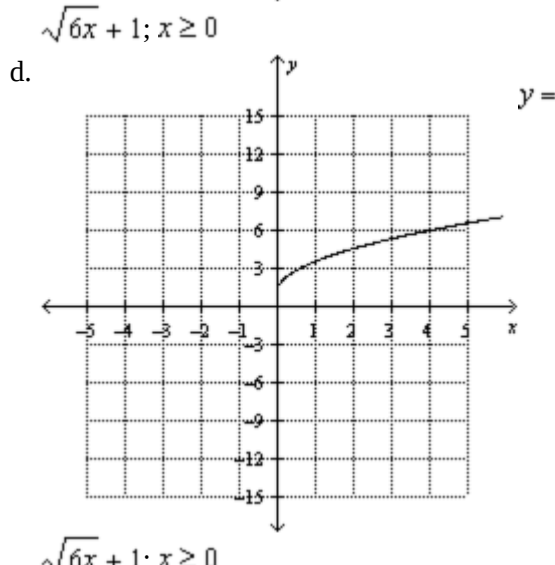
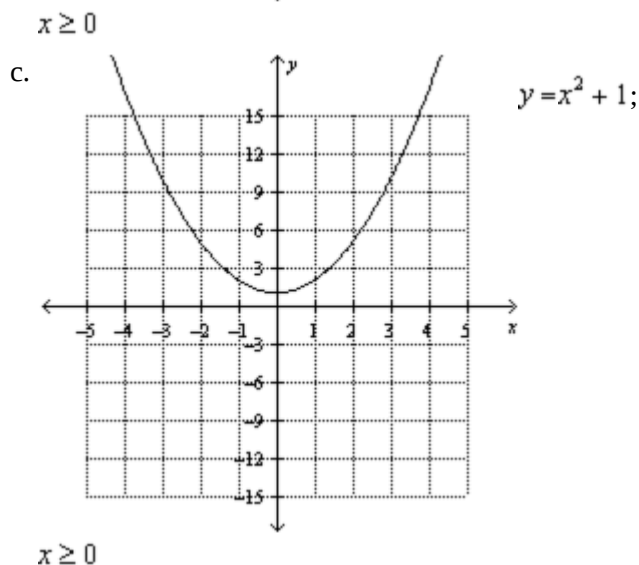
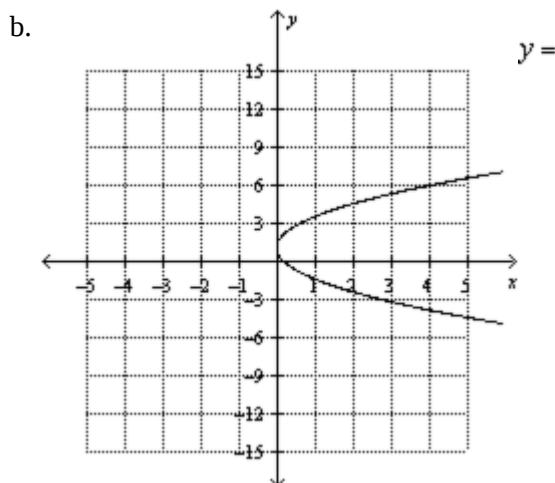
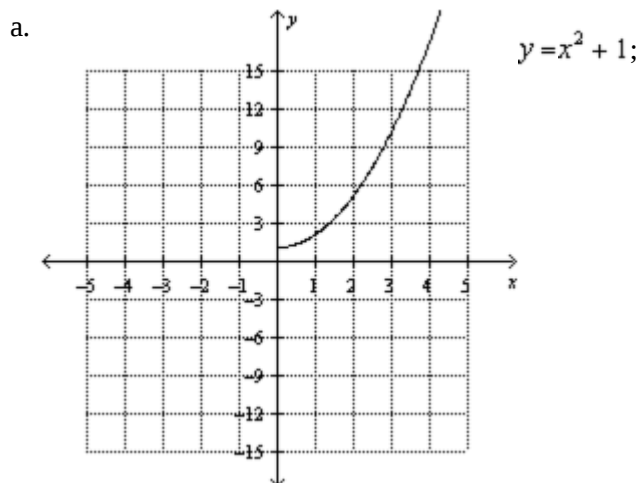


d.



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28. Write $y = \frac{t+6}{t}$ and $x = \frac{6}{\sqrt{t}}$ in rectangular form. Then graph the equation and state any restrictions on the domain.



29. Use $\theta = 30^\circ$ to write $5x'^2 + 6y'^2 = 30$ in the $x'y'$ -plane. Then identify the conic.

- a. $6(x')^2 + 12\sqrt{3}x'y' + 9(y')^2 - 40 = 0$; ellipse
- b. $6(x')^2 + 12\sqrt{3}x'y' + 9(y')^2 - 40 = 0$; hyperbola
- c. $21(x')^2 + 2\sqrt{3}x'y' + 23(y')^2 - 120 = 0$; ellipse
- d. $21(x')^2 + 2\sqrt{3}x'y' + 23(y')^2 - 120 = 0$; hyperbola

30. Determine the orientation of the parabola.

directrix: $x = -3$; $p = 4$

- a. opens down
- b. opens right
- c. opens up
- d. opens left

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