

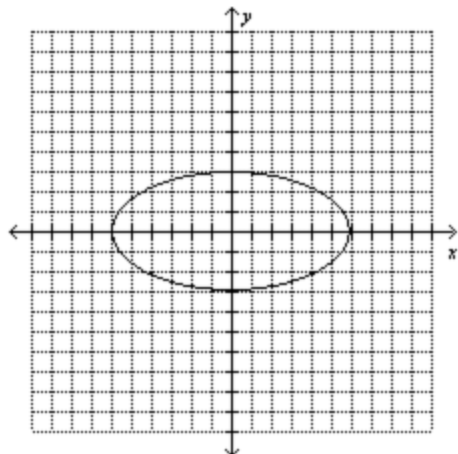
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Precalculus G11 Ch7 Qs. bank

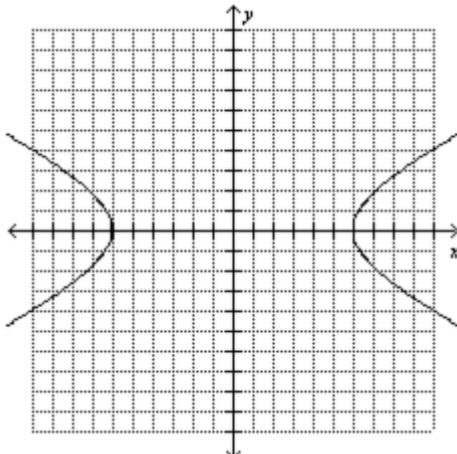
Indicate the answer choice that best completes the statement or answers the question.

1. Which of the following is the graph of $36x^2 + 9y^2 = 324$?

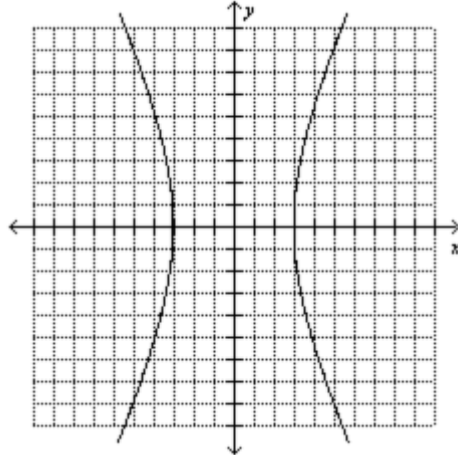
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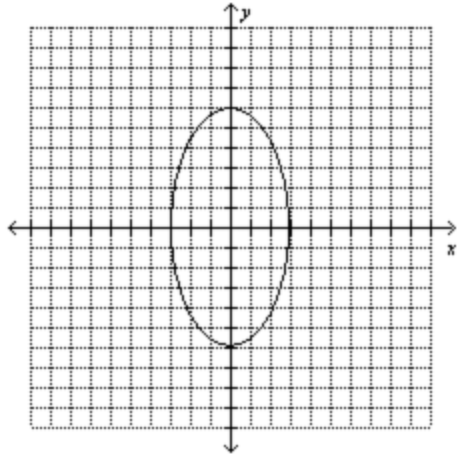
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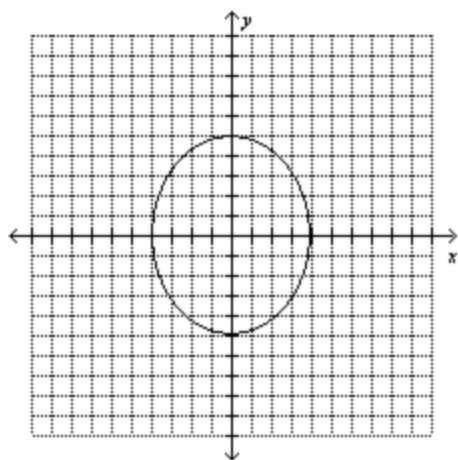


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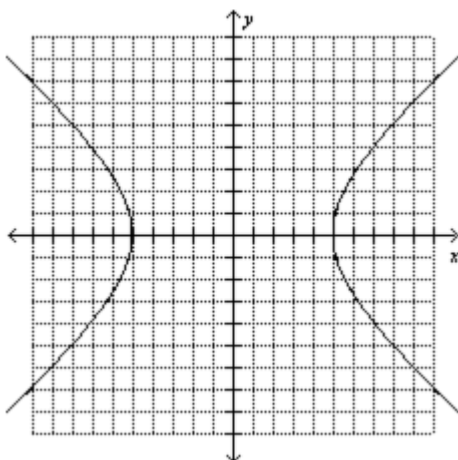
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2. Which of the following is the graph of $16x^2 + 25y^2 = 400$?

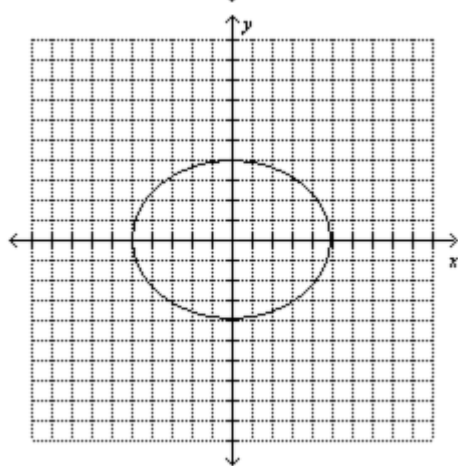
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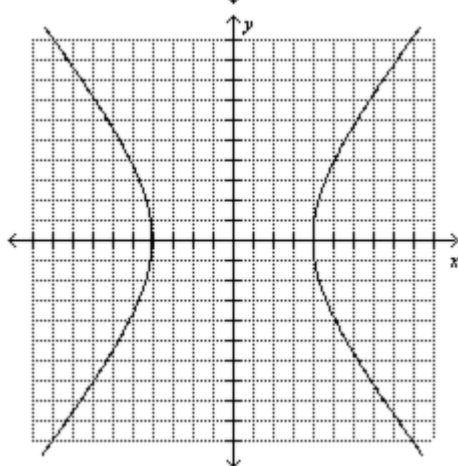
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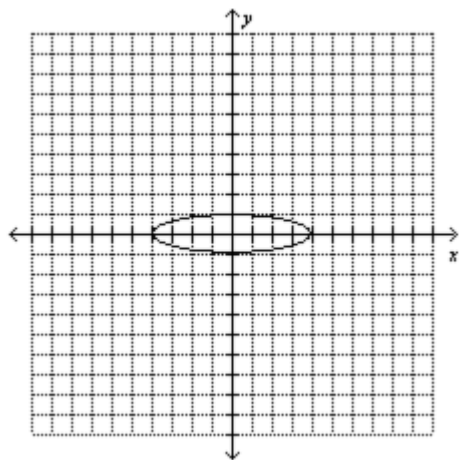


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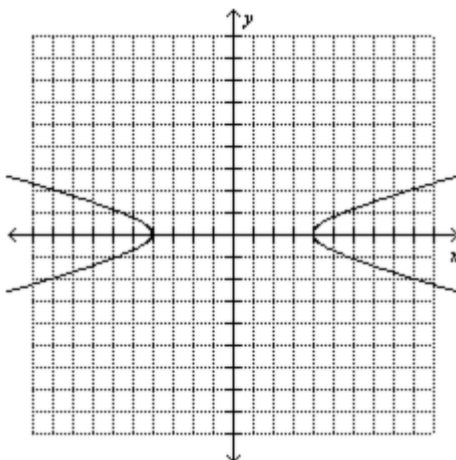
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3. Which of the following is the graph of $x^2 + 16y^2 = 16$?

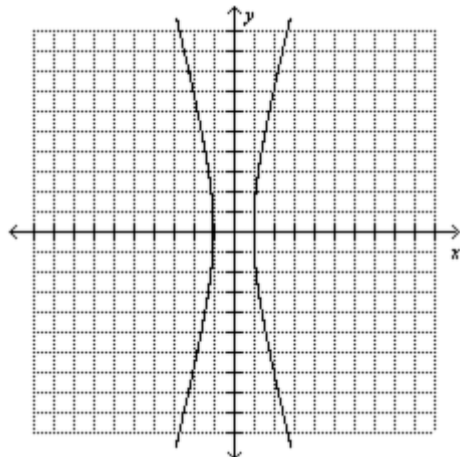
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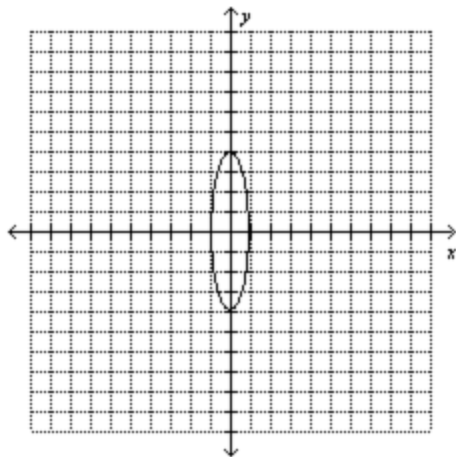
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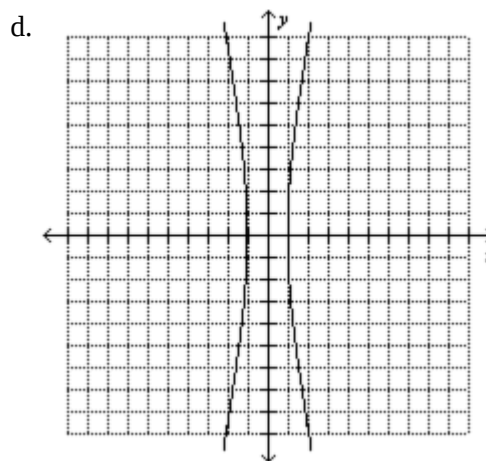
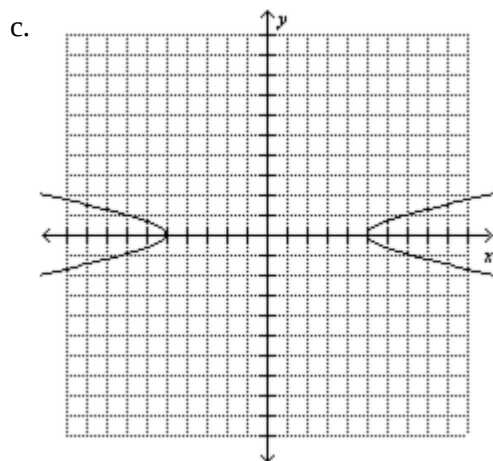
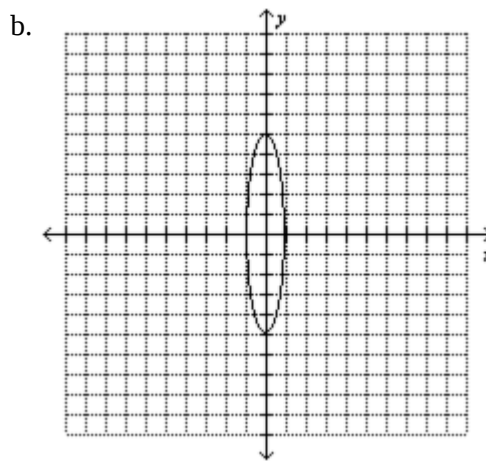
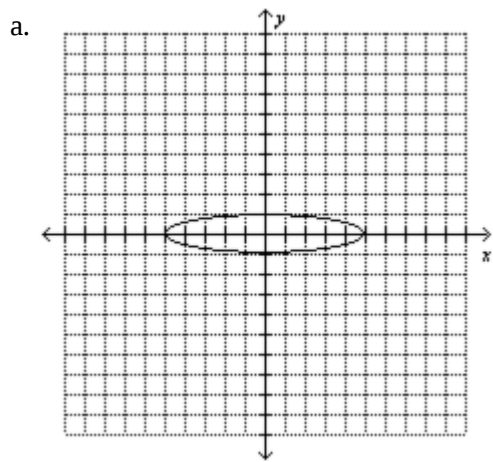
d.



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4. Which of the following is the graph of $25x^2 + y^2 = 25$?

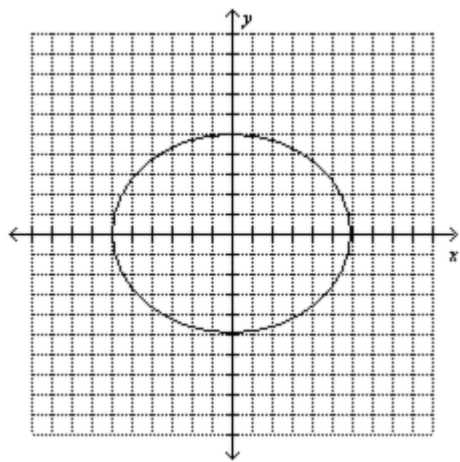


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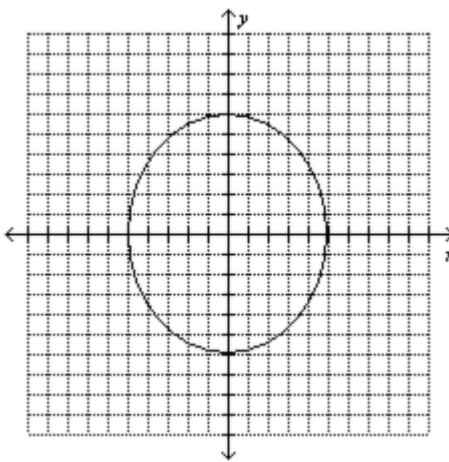
Precalculus G11 Ch7 Qs. bank

5. Which of the following is the graph of $36x^2 + 25y^2 = 900$?

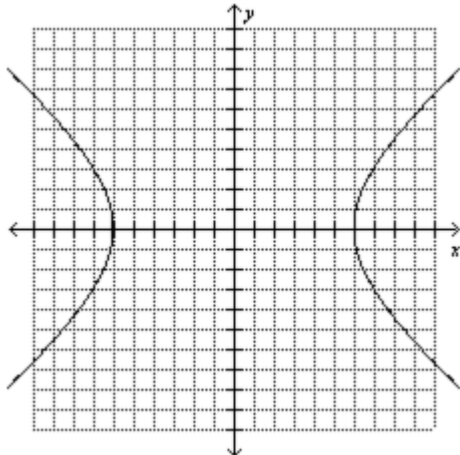
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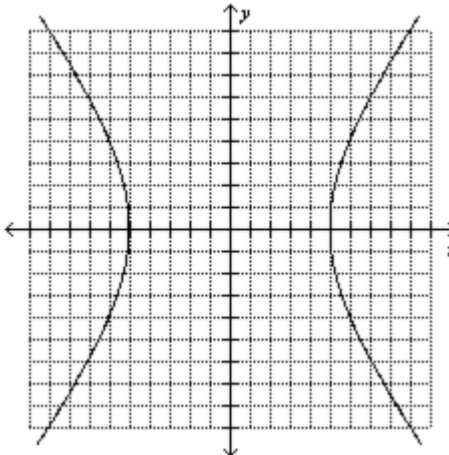
b.



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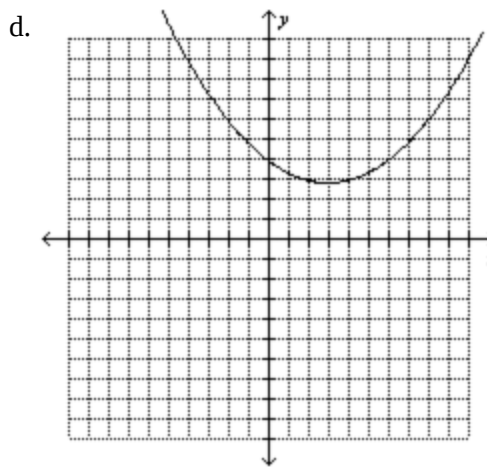
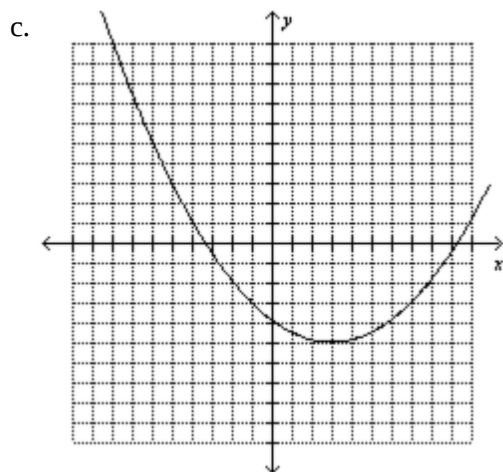
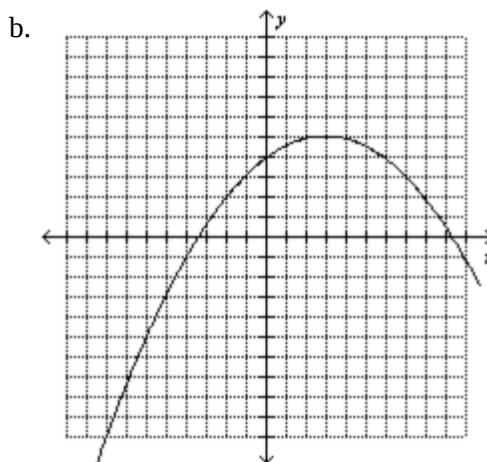
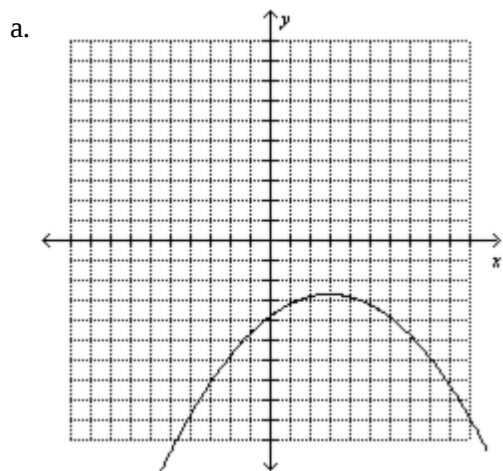
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6. Write the equation for the hyperbola with foci $(-6, 7)$, $(-15, 7)$ and conjugate axis of length 8.

a. $\frac{(y-7)^2}{4.25} - \frac{(x+10.5)^2}{16} = 1$ b. $\frac{(x+10.5)^2}{4.25} - \frac{(y-7)^2}{16} = 1$

c. $\frac{(y-7)^2}{16} - \frac{(x+10.5)^2}{4.25} = 1$ d. $\frac{(x+10.5)^2}{16} - \frac{(y-7)^2}{4.25} = 1$

7. Graph $x^2 - 6x + 8y - 31 = 0$.



8. Write the equation for the hyperbola with foci $(-12, -11)$, $(4, -11)$ and vertices $(-10, -11)$, $(2, -11)$.

a. $\frac{(y+11)^2}{36} - \frac{(x+4)^2}{28} = 1$ b. $\frac{(x+4)^2}{36} - \frac{(y+11)^2}{28} = 1$

c. $\frac{(x+4)^2}{36} + \frac{(y+11)^2}{28} = 1$ d. $\frac{(x+4)^2}{6} - \frac{(y+11)^2}{5.29} = 1$

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

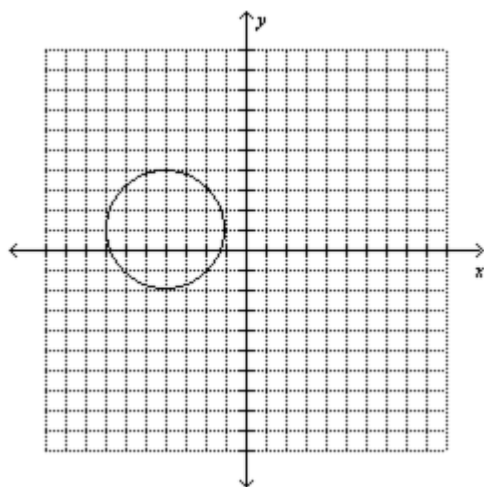
- a. ellipse b. hyperbola
c. parabola d. circle

10. Find the equation of the circle with center $(5, -4)$ and radius of 4.

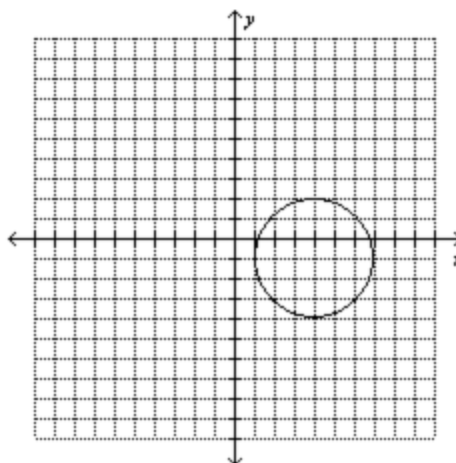
- a. $(x-5)^2 + (y-4)^2 = 4$ b. $(x-5)^2 + (y+4)^2 = 4$
c. $(x-5)^2 + (y-4)^2 = 16$ d. $(x-5)^2 + (y+4)^2 = 16$

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

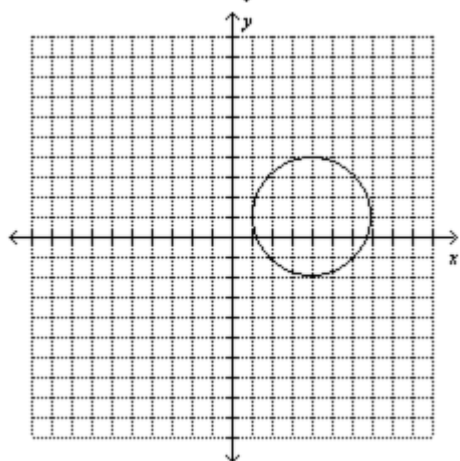
a.



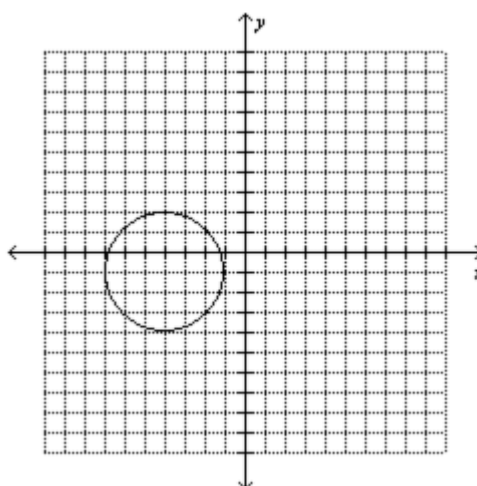
b.



c.



d.



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12. Determine the orientation of the parabola.

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

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

13. Use the discriminant to determine the conic given by $8x^2 + 6xy - 7y^2 + 30x + 40y + 131$.

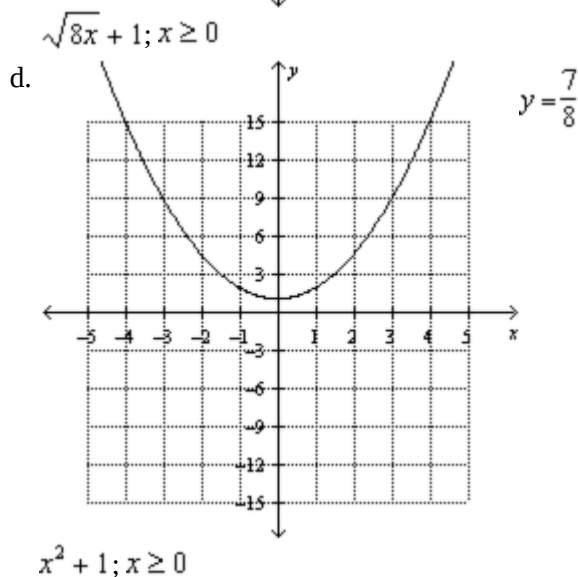
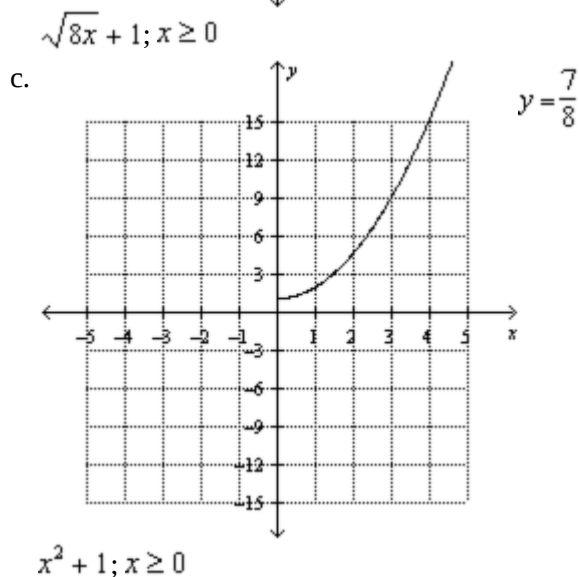
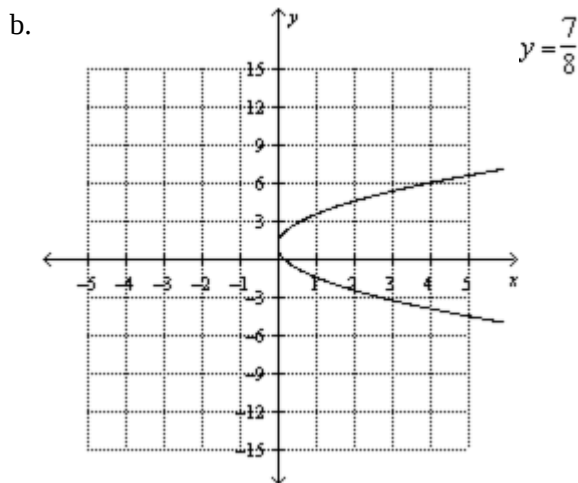
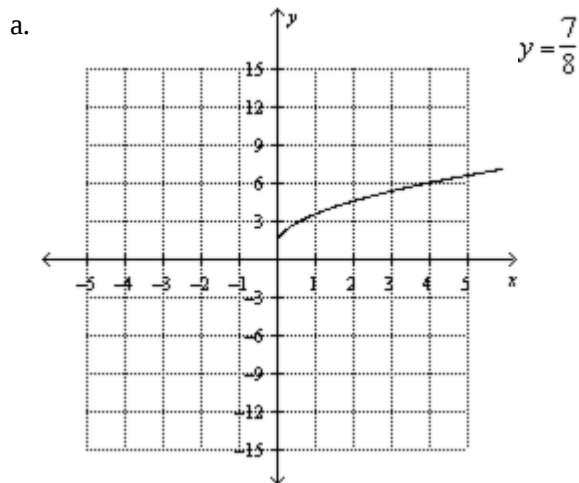
- a. hyperbola b. ellipse
- c. parabola d. circle

14. Write the equation for the hyperbola with foci $(1, -10)$, $(1, 0)$ and vertices $(1, -7)$, $(1, -3)$.

- a. $\frac{(y+5)^2}{2} - \frac{(x-1)^2}{4.58} = 1$
- b. $\frac{(y+5)^2}{4} + \frac{(x-1)^2}{21} = 1$
- c. $\frac{(x-1)^2}{4} - \frac{(y+5)^2}{21} = 1$
- d. $\frac{(y+5)^2}{4} - \frac{(x-1)^2}{21} = 1$

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15. Write $y = \frac{t+7}{t}$ and $x = \frac{8}{\sqrt{t}}$ in rectangular form. Then graph the equation and state any restrictions on the domain.



16. Write the equation of the parabola $y = x^2 - 10x - 23$ in standard form.

- a. $y + 25 = (x - 5)^2$ b. $y + 48 = (x - 5)^2$
 c. $y - 5 = (x - 5)^2$ d. $y + 23 = (x - 5)^2$

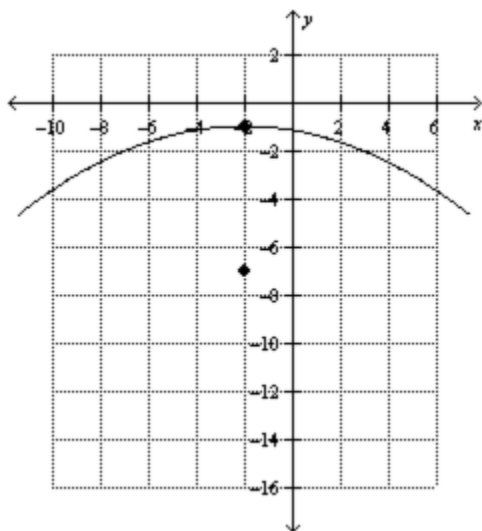
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17. Write the equation for the hyperbola with foci $(1, -5)$, $(9, -5)$ and conjugate axis of length 6.

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

18. Identify the equation of the graph shown.



a. $(x+2)^2 = -24(y+1)$ b. $(x+2) = -24(y+1)^2$
c. $(x+2)^2 = -6(y+1)$ d. $(x+1)^2 = -24(y+2)$

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

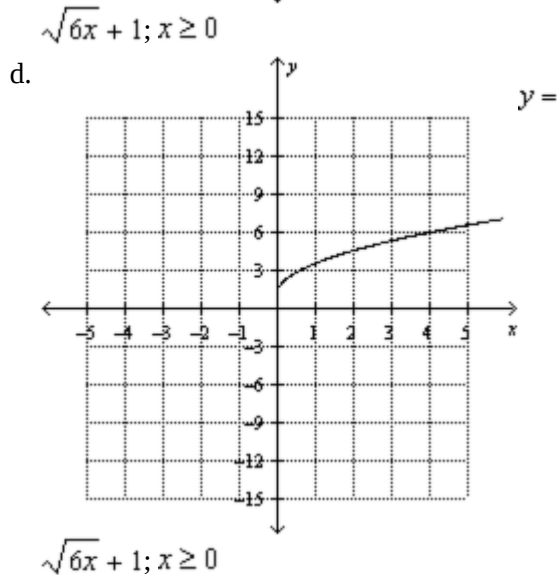
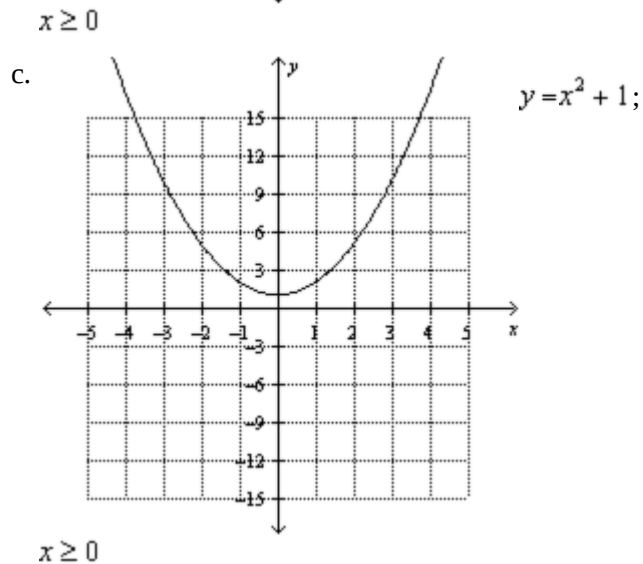
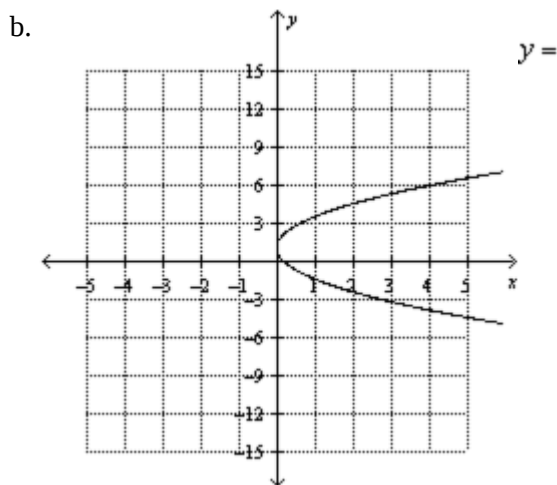
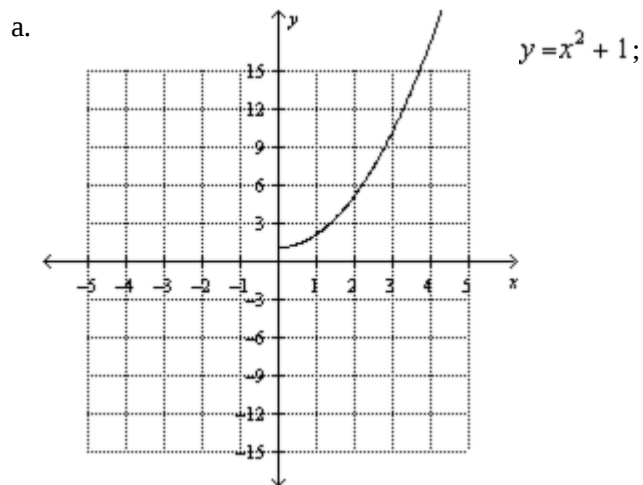
a. $6(x')^2 + 12\sqrt{3}x'y' + 9(y')^2 - 40 = 0$; ellipse
b. $6(x')^2 + 12\sqrt{3}x'y' + 9(y')^2 - 40 = 0$; hyperbola
c. $21(x')^2 + 2\sqrt{3}x'y' + 23(y')^2 - 120 = 0$; ellipse
d. $21(x')^2 + 2\sqrt{3}x'y' + 23(y')^2 - 120 = 0$; hyperbola

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20. Use $\theta = 60^\circ$ to write $2x^2 + 5y^2 + 2x + 6y = 44$ in the $x'y'$ -plane. Then identify the conic.

- a. $(x')^2 + 14\sqrt{3}x'y' + 12(y')^2 + (-12 + 4\sqrt{3})x' + (-4 + 12\sqrt{3})y' - 176 = 0$; parabola
- b. $(x')^2 + 14\sqrt{3}x'y' + 12(y')^2 + (-12 + 4\sqrt{3})x' + (-4 + 12\sqrt{3})y' - 176 = 0$; ellipse
- c. $17(x')^2 + 14\sqrt{3}x'y' + 11(y')^2 + (4 + 12\sqrt{3})x' + (12 + 4\sqrt{3})y' - 176 = 0$; parabola
- d. $17(x')^2 + 14\sqrt{3}x'y' + 11(y')^2 + (4 + 12\sqrt{3})x' + (12 + 4\sqrt{3})y' - 176 = 0$; ellipse

21. 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.



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22. Write an equation for the conic in the xy -plane for $\frac{(x')^2}{15} - \frac{(y')^2}{6} = 1$ at $\theta = 30^\circ$.

- a. $3x^2 + 42\sqrt{3}xy - 39y^2 - 360 = 0$
- b. $-39x^2 + 42\sqrt{3}xy + 3y^2 - 360 = 0$
- c. $3x^2 - 12\sqrt{3}xy - 39y^2 - 360 = 0$
- d. $-9x^2 + 42\sqrt{3}xy - 9y^2 - 180 = 0$

23. Determine the orientation of the parabola.

directrix: $x = -5$; $p = 2$

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

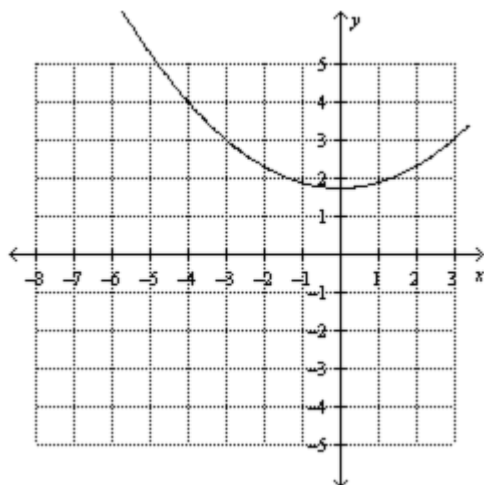
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24. Sketch the curve given by the set of parametric equations.

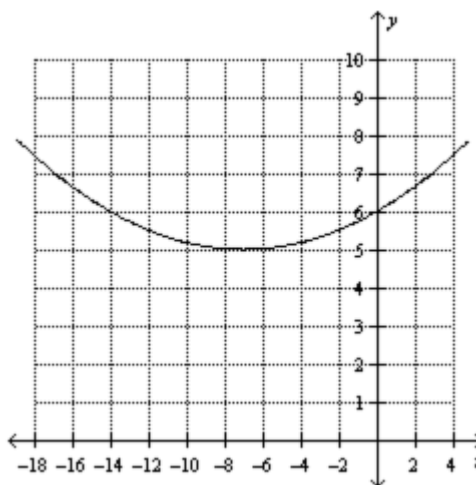
$$x = t^2 + 5$$

$$y = \frac{t}{7} + 1$$

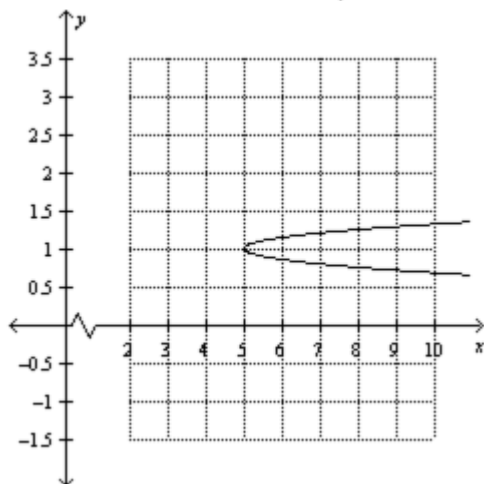
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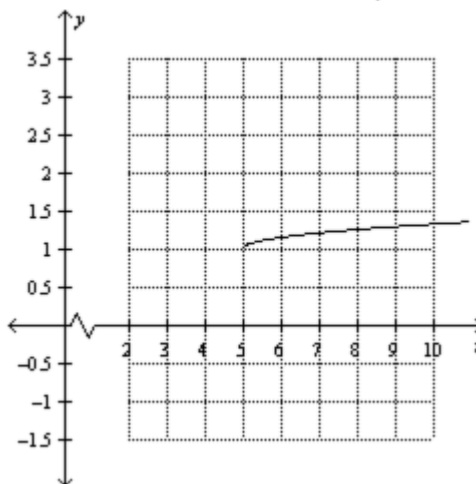
b.



c.



d.



25. Write the equation for the hyperbola with foci $(2, -22)$, $(2, -2)$ and vertices $(2, -14)$, $(2, -10)$.

a. $\frac{(y+12)^2}{4} - \frac{(x-2)^2}{96} = 1$

b. $\frac{(x-2)^2}{4} - \frac{(y+12)^2}{96} = 1$

c. $\frac{(y+12)^2}{4} + \frac{(x-2)^2}{96} = 1$

d. $\frac{(y+12)^2}{2} - \frac{(x-2)^2}{9.8} = 1$

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

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

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27. Write an equation for the conic in the xy -plane for $\frac{(x')^2}{22} - \frac{(y')^2}{32} = 1$ at $\theta = 30^\circ$.

- a. $74x^2 + 81\sqrt{3}xy - 34y^2 - 2816 = 0$
- b. $74x^2 + 108\sqrt{3}xy - 34y^2 - 2816 = 0$
- c. $10x^2 + 108\sqrt{3}xy + 10y^2 - 1408 = 0$
- d. $-34x^2 + 108\sqrt{3}xy + 74y^2 - 2816 = 0$

28. Write the equation of the ellipse $4x^2 + 9y^2 - 16x - 126y + 421 = 0$ in standard form.

- a. $\frac{(x-2)^2}{4} + \frac{(y-7)^2}{9} = 1$
- b. $(x-2)^2 + (y-7)^2 = 36$
- c. $\frac{(x-2)^2}{9} + \frac{(y-7)^2}{4} = 1$
- d. $\frac{(x+2)^2}{9} + \frac{(x+7)^2}{4} = 1$

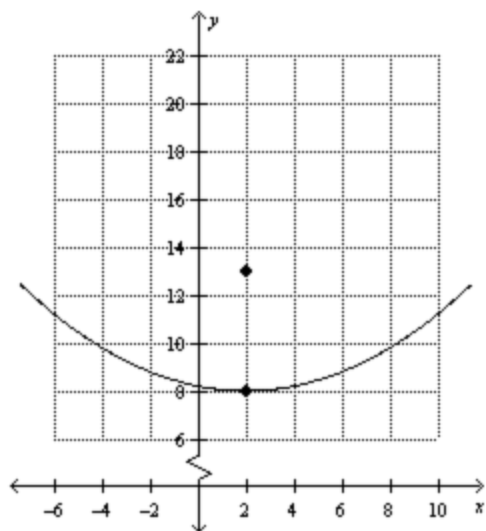
29. Write the equation of the ellipse $4x^2 + 9y^2 + 72x + 108y + 612 = 0$ in standard form.

- 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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30. Identify the equation of the graph shown.



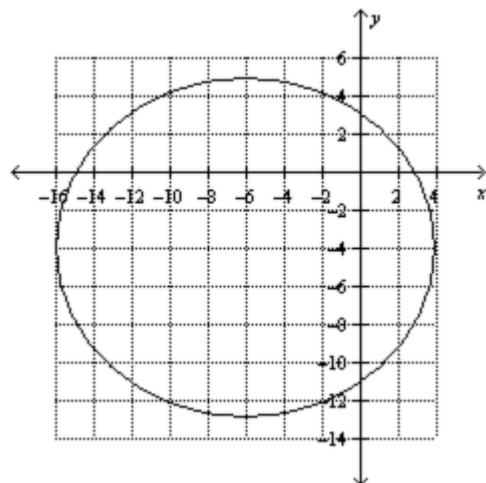
- a. $(x-2) = 20(y-8)^2$ b. $(x-2)^2 = 5(y-8)$
c. $(x-8)^2 = 20(y-2)$ d. $(x-2)^2 = 20(y-8)$

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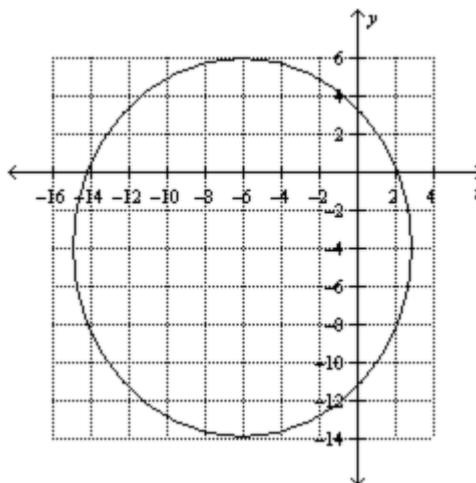
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31. Identify the graph of the ellipse given by $\frac{(x+4)^2}{81} + \frac{(y+6)^2}{100} = 1$

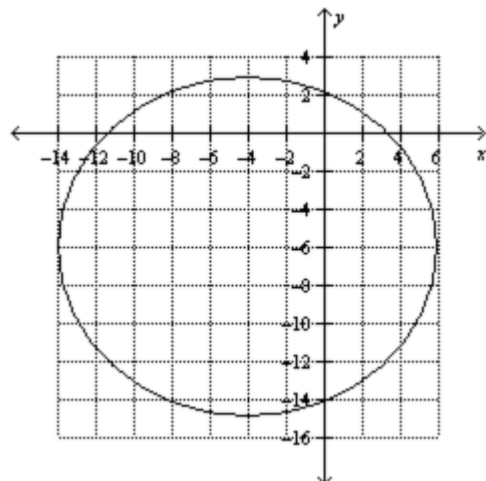
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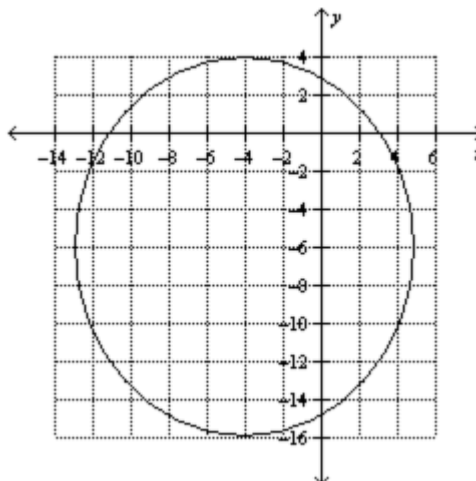
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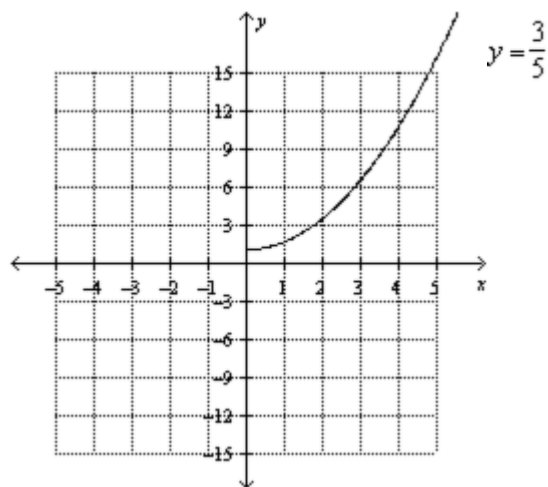
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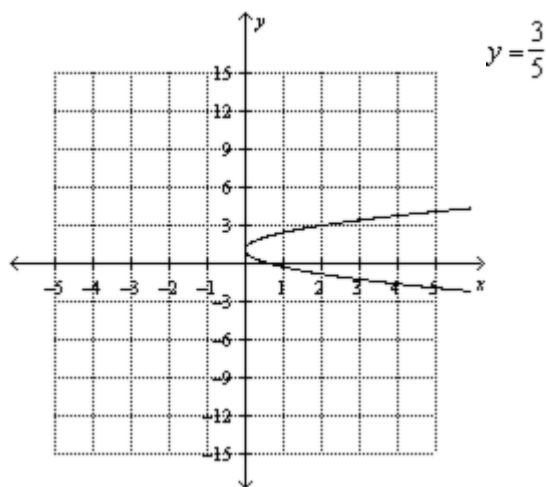
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32. Write $y = \frac{t+3}{t}$ and $x = \frac{5}{\sqrt{t}}$ in rectangular form. Then graph the equation and state any restrictions on the domain.

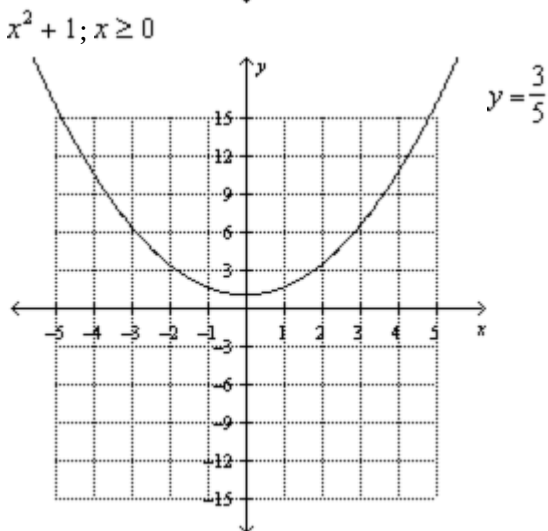
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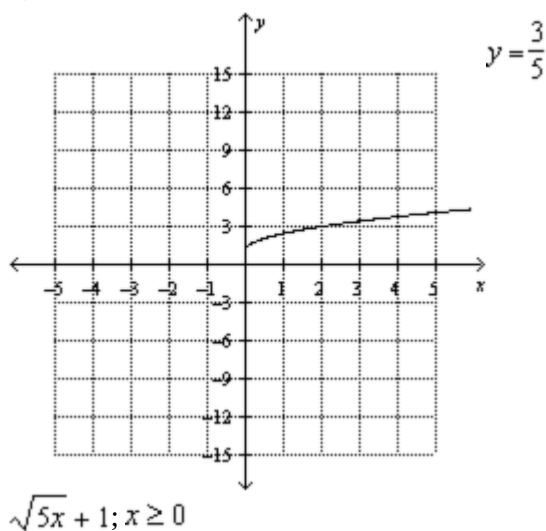
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$x^2 + 1; x \geq 0$

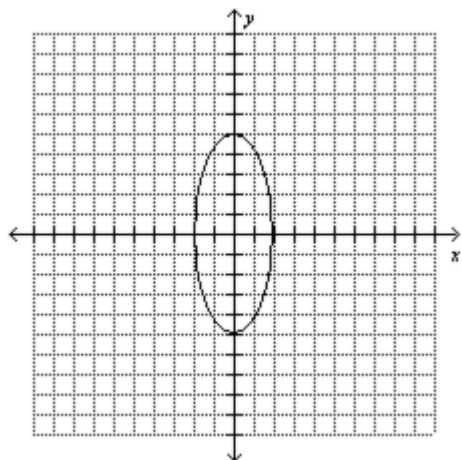
$\sqrt{5x + 1}; x \geq 0$

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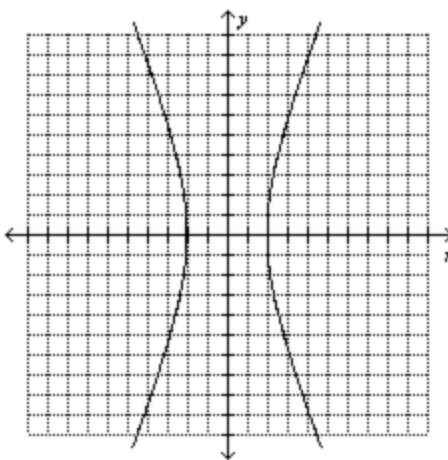
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33. Graph $\frac{x^2}{4} - \frac{y^2}{25} = 1$.

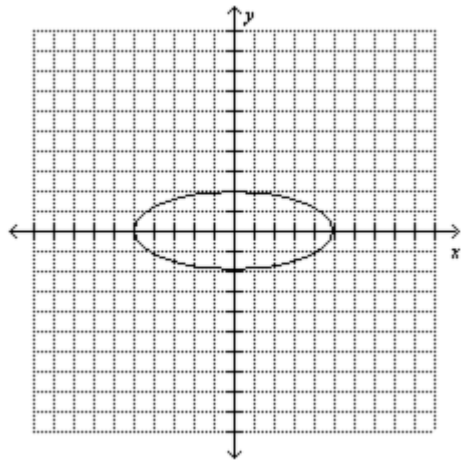
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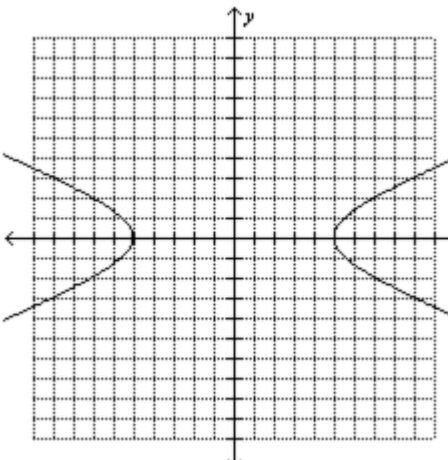
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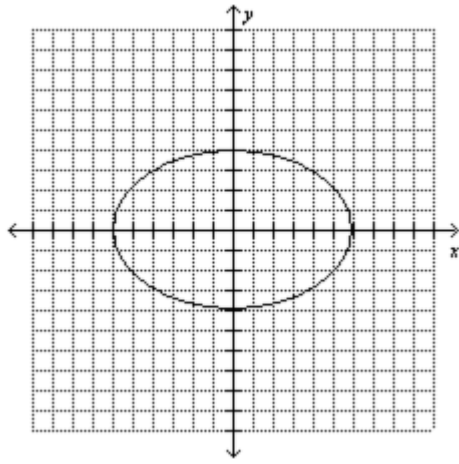


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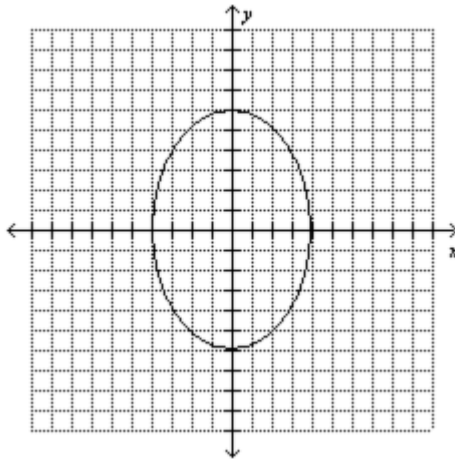
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34. Graph $\frac{x^2}{16} - \frac{y^2}{36} = 1$.

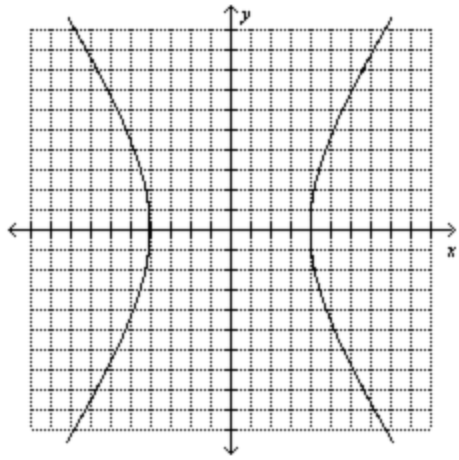
a.



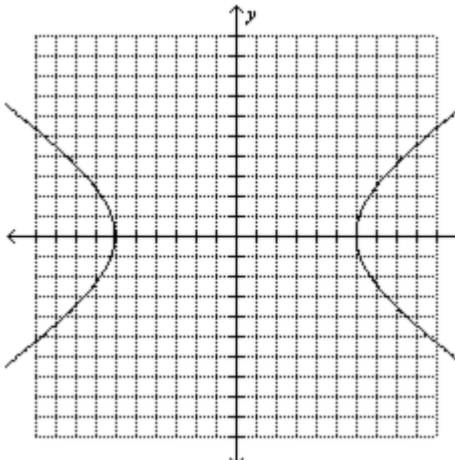
b.



c.



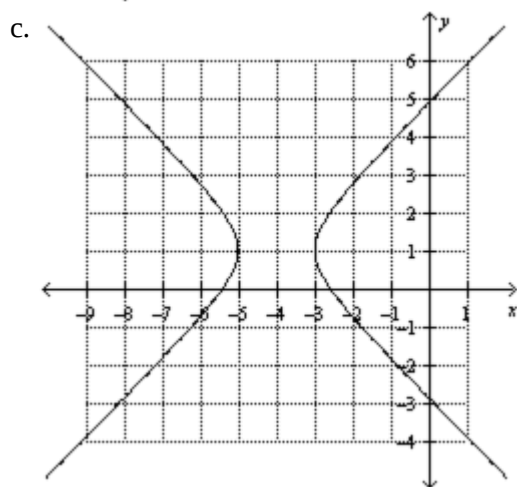
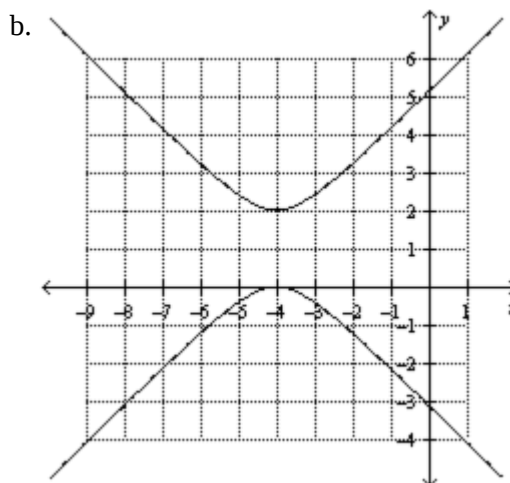
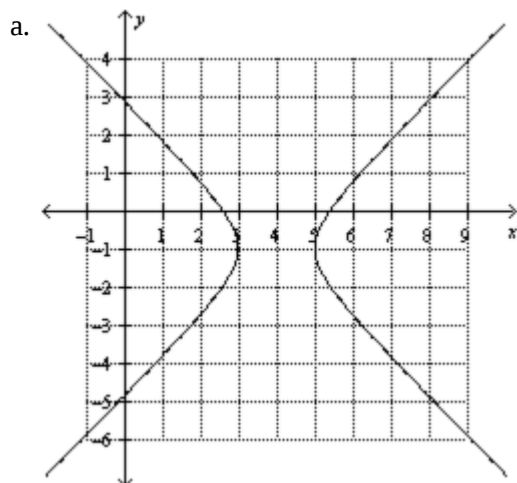
d.



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35. Graph the hyperbola given by $x^2 - y^2 + 8x + 2y + 14 = 0$.

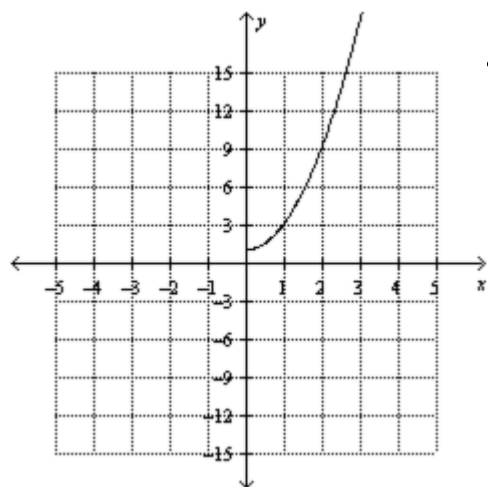


d. This graph will not form a hyperbola.

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36. Write $y = \frac{t+2}{t}$ and $x = \frac{1}{\sqrt{t}}$ in rectangular form. Then graph the equation and state any restrictions on the domain.

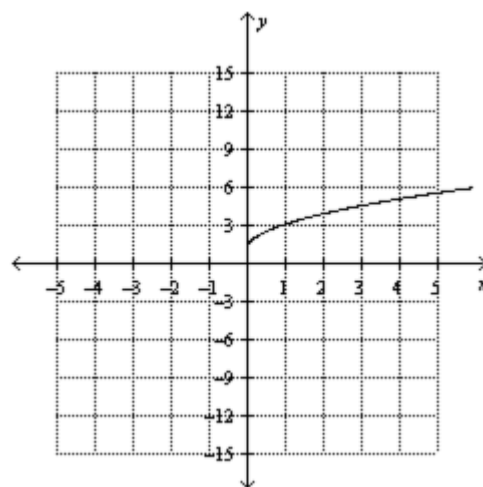
a.



$$y = 2x^2 + 1$$

$$; x \geq 0$$

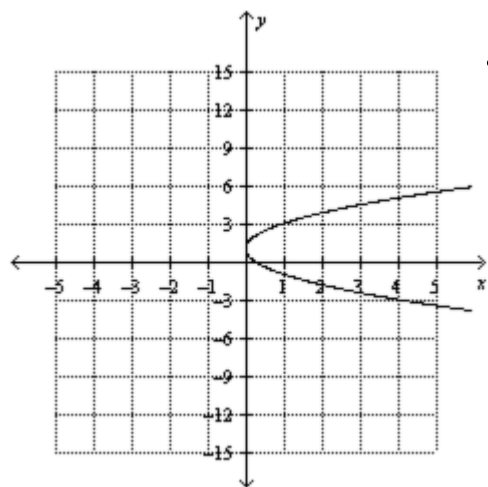
b.



$$y = 2$$

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

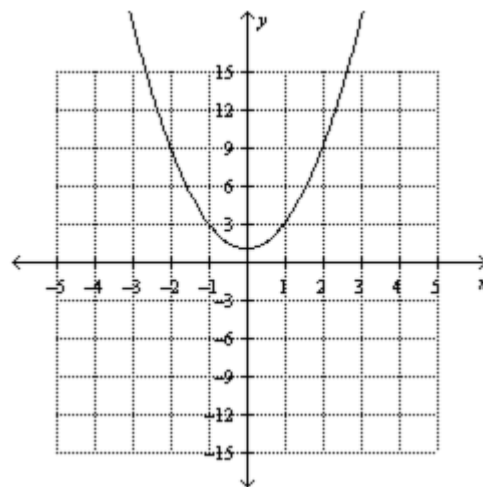
c.



$$y = 2$$

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

d.



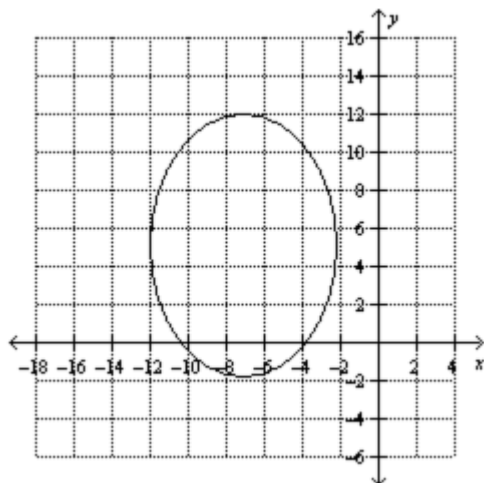
$$y = 2x^2 + 1$$

$$; x \geq 0$$

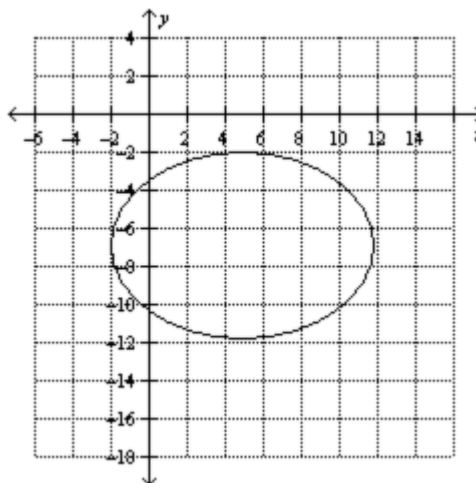
Precalculus G11_Ch7_Qs.bank

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

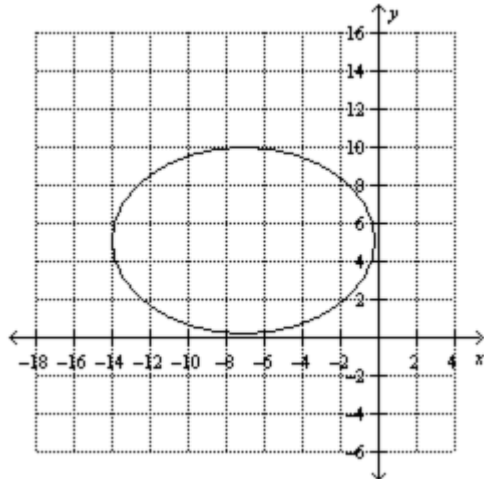
a.



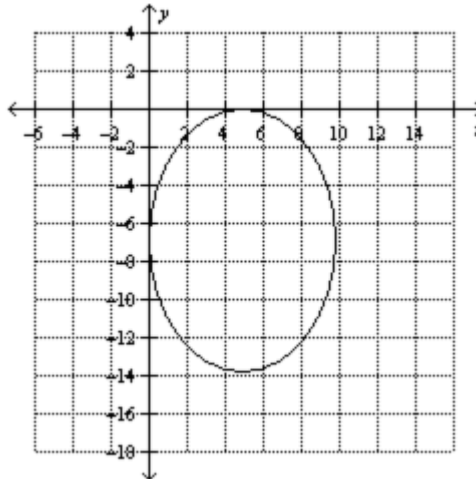
b.



c.



d.



38. Use $\theta = \frac{\pi}{4}$ to write $13x^2 + 10xy + 13y^2 + 42\sqrt{2}x - 6\sqrt{2}y + 18 = 0$ in the $x'y'$ -plane. Then identify the conic.

a. $9(x')^2 + 4(y')^2 + 18x' - 24y' + 9 = 0$; parabola

b. $9(x')^2 + 4(y')^2 + 18x' - 24y' + 9 = 0$; ellipse

c. $12(x')^2 + 8(y')^2 + 10x' - 12y' + 72 = 0$; ellipse

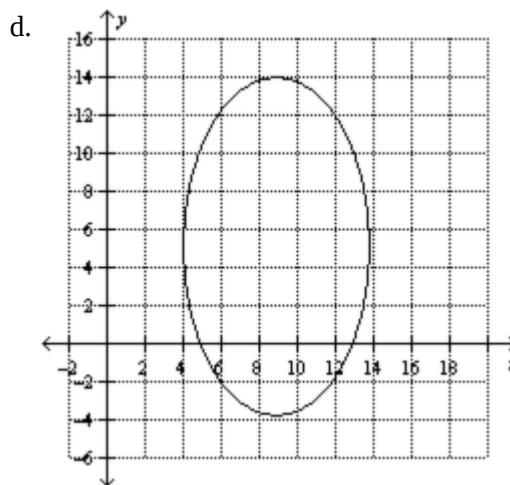
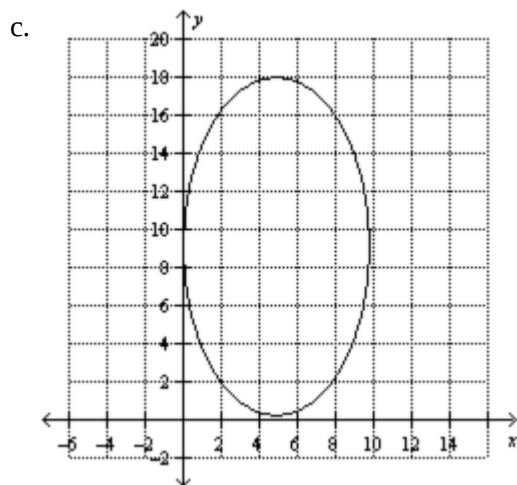
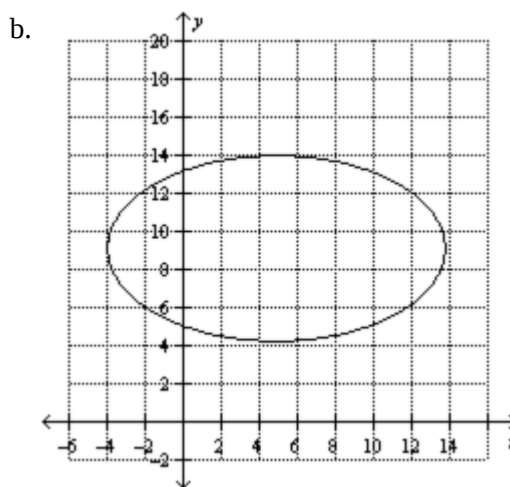
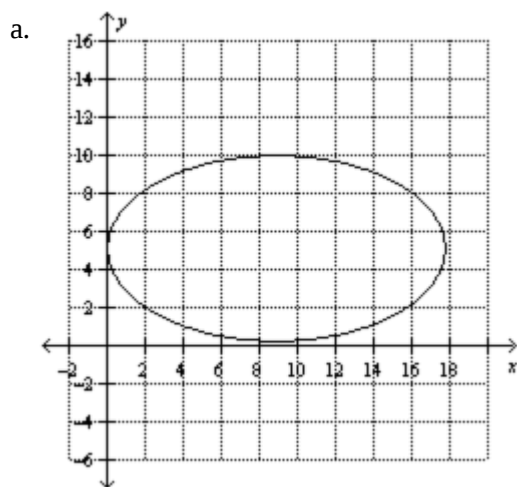
d. $12(x')^2 + 8(y')^2 + 10x' - 12y' + 72 = 0$; parabola

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39. Use $\theta = 45^\circ$ to write $5x^2 + 4y^2 - 2x + 4y = 16$ in the $x'y'$ -plane. Then identify the conic.

- a. $17(x')^2 + 18\sqrt{3}x'y' - 4(y')^2 + (-4 + 8\sqrt{3})x' + (8 + 4\sqrt{3})y' - 64 = 0$; parabola
- b. $9(x')^2 + 18\sqrt{3}x'y' + 9(y')^2 + (0 + 2\sqrt{2})x' + (0 + 6\sqrt{2})y' - 32 = 0$; ellipse
- c. $17(x')^2 + 18\sqrt{3}x'y' - 4(y')^2 + (-4 + 8\sqrt{3})x' + (8 + 4\sqrt{3})y' - 64 = 0$; ellipse
- d. $9(x')^2 + 18\sqrt{3}x'y' + 9(y')^2 + (0 + 2\sqrt{2})x' + (0 + 6\sqrt{2})y' - 32 = 0$; circle

40. Identify the graph of the ellipse given by $\frac{(x-5)^2}{81} + \frac{(y-9)^2}{25} = 1$

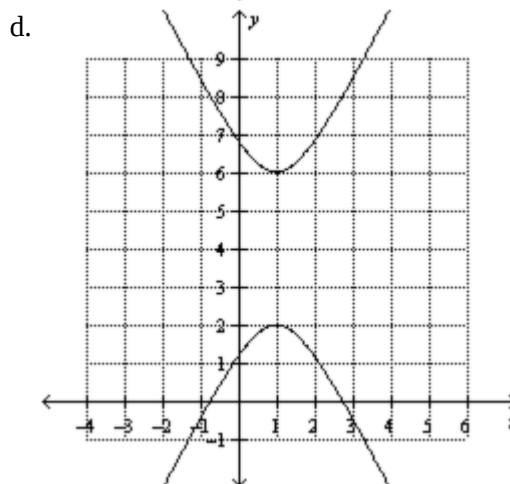
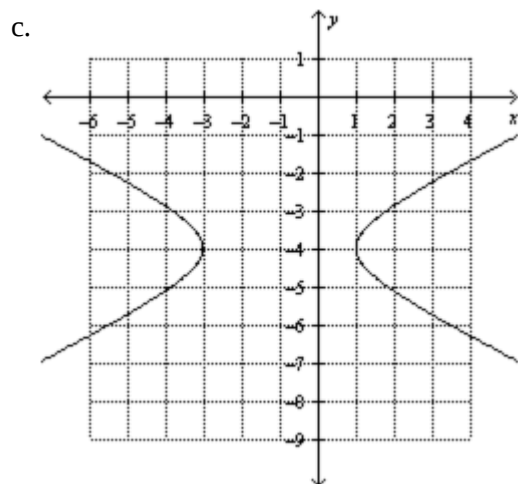
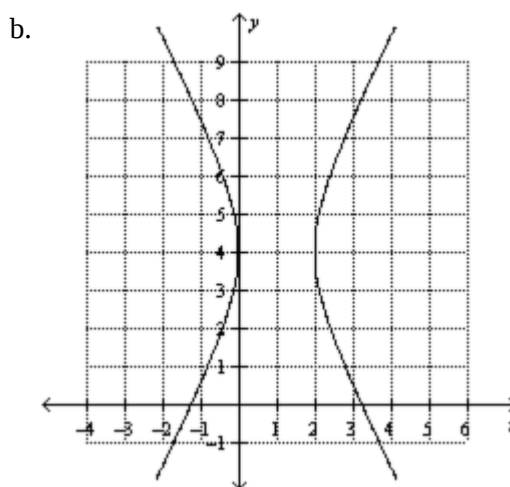
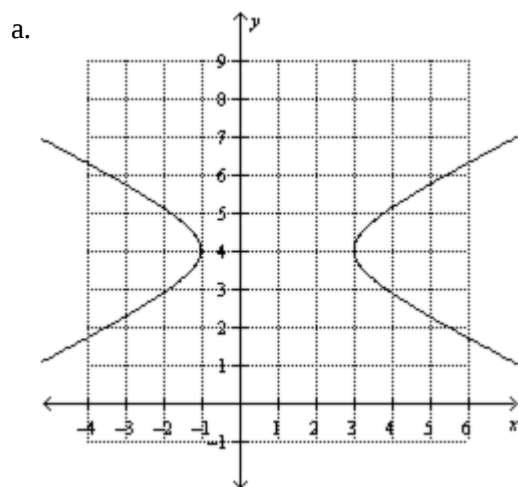


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41. A golf ball is hit with an initial velocity of 155 ft/s at an angle of 23° with the horizontal. After 1.4 seconds, how far has the golf ball traveled horizontally and vertically?

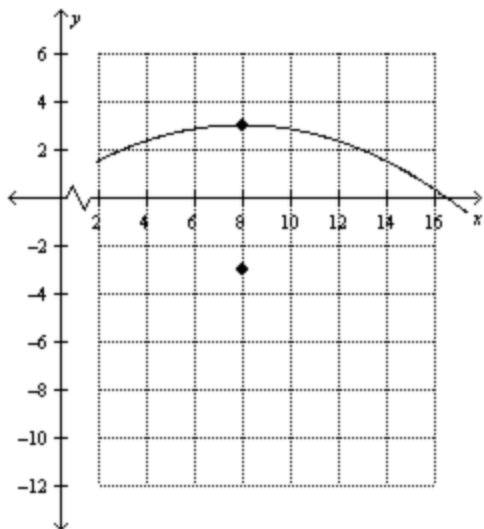
- a. 199.7 feet horizontally and 75.2 feet vertically
- b. 60.6 feet horizontally and 168.4 feet vertically
- c. 199.7 feet horizontally and 53.4 feet vertically
- d. 60.6 feet horizontally and 174.4 feet vertically

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



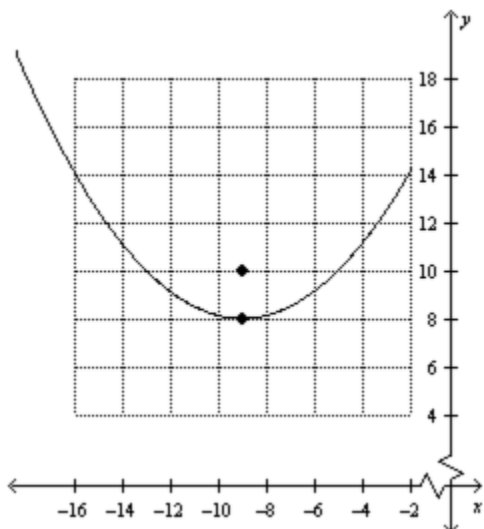
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43. Identify the equation of the graph shown.



- a. $(x - 8) = -24(y - 3)^2$ b. $(x - 8)^2 = -6(y - 3)$
 c. $(x - 3)^2 = -24(y - 8)$ d. $(x - 8)^2 = -24(y - 3)$

44. Identify the equation of the graph shown.



- a. $(x - 8)^2 = 8(y + 9)$ b. $(x + 9) = 8(y - 8)^2$
 c. $(x + 9)^2 = 2(y - 8)$ d. $(x + 9)^2 = 8(y - 8)$

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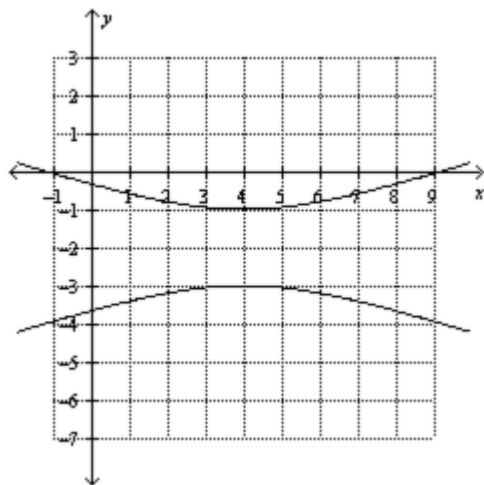
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45. Identify the conic and the angle of rotation for $13x^2 - 6\sqrt{6}xy + 7y^2 - 16 = 0$.

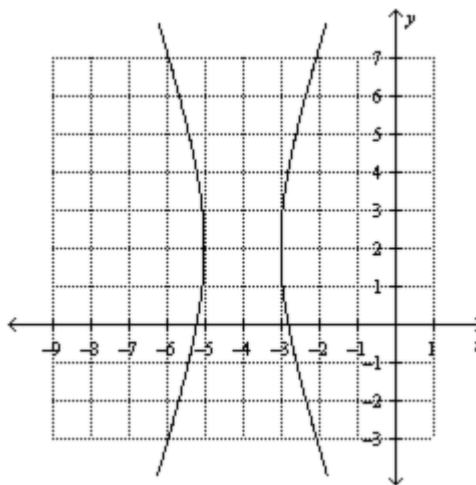
- a. hyperbola; 45° b. ellipse; 90°
c. hyperbola; 60° d. ellipse; 30°

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

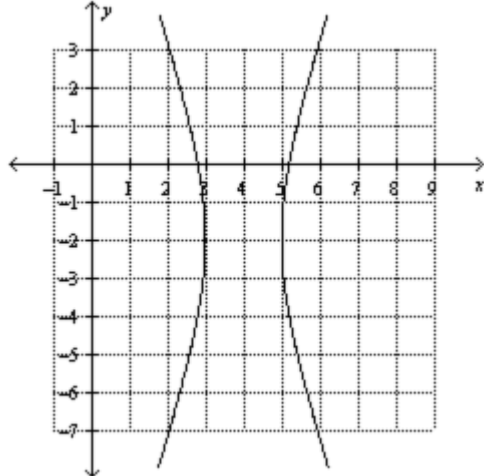
a.



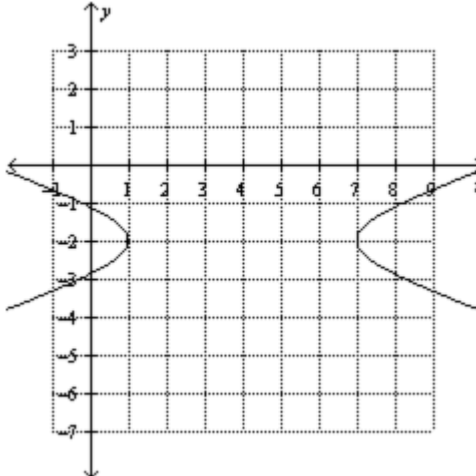
b.



c.



d.



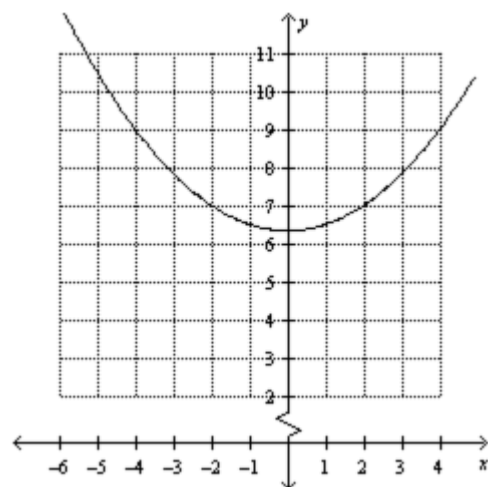
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47. Sketch the curve given by the set of parametric equations.

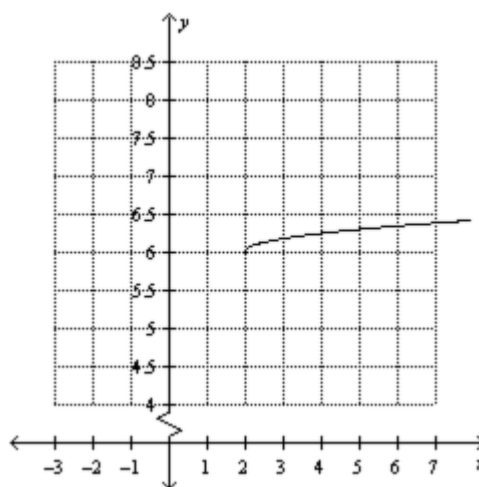
$$x = t^2 + 2$$

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

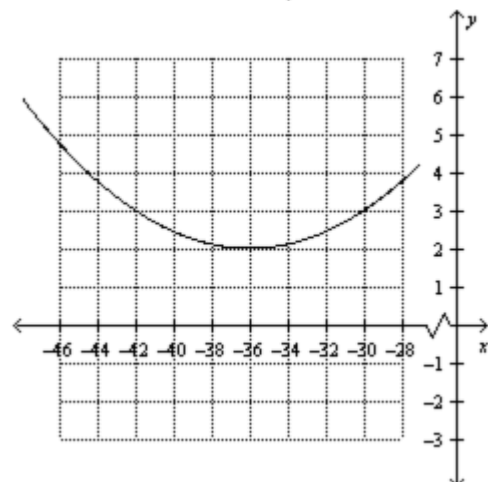
a.



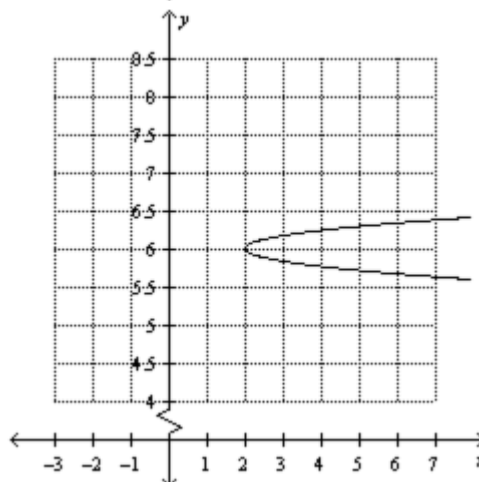
b.



c.



d.



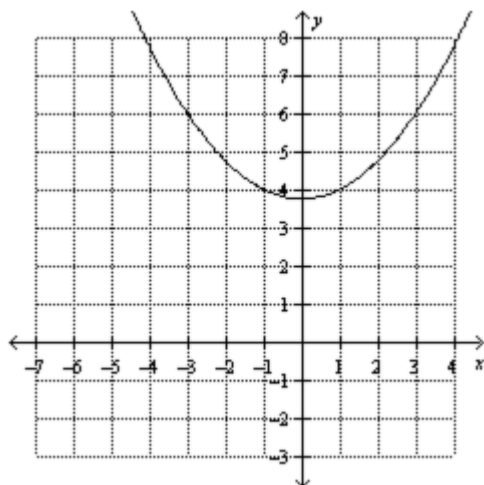
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48. Sketch the curve given by the set of parametric equations.

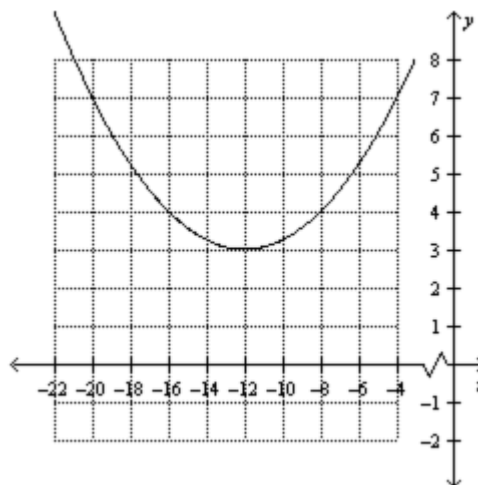
$$x = t^2 + 3$$

$$y = \frac{t}{4} + 3$$

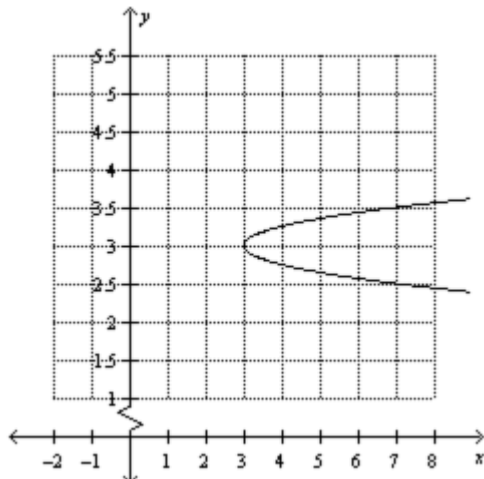
a.



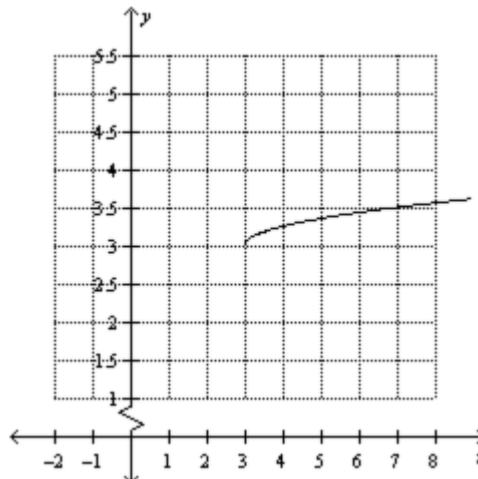
b.



c.



d.



49. Identify the conic given by $\frac{(x-1)^2}{4} + \frac{(y-5)^2}{81} = 1$

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

50. Use $t = 2x + 2$ to write the parametric equations that can represent $y = 10x + 14$.

- a. $x = \frac{t-2}{2}; y = 5t + 4$ b. $x = \frac{t+2}{2}; y = 5t + 4$
c. $x = \frac{t-2}{2}; y = 5t - 4$ d. $x = 2t - 2; y = 20t + 4$

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Answer Key

1. d
2. c
3. a
4. b
5. b
6. b
7. b
8. b
9. b
10. d
11. c
12. d
13. a
14. d
15. c
16. b
17. a
18. a
19. c
20. d
21. a
22. a
23. d
24. c
25. a

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26. d

27. b

28. c

29. d

30. d

31. d

32. a

33. b

34. c

35. c

36. a

37. c

38. b

39. b

40. b

41. c

42. a

43. d

44. d

45. d

46. c

47. d

48. c

49. a

50. a