

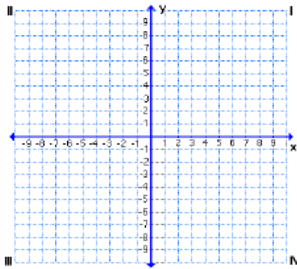
Conic Sections ... Set 1

Conics Test REVIEW

Pre-Calculus

Find the center and the exact radius of the **circle**. Then graph the circle.

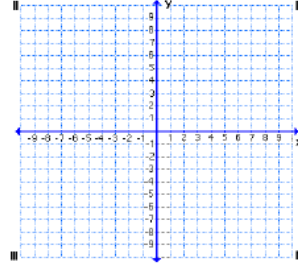
1. $(x - 5)^2 + (y + 3)^2 = 9$



Center: _____

Radius: _____

2. $(x + 3)^2 + y^2 = \frac{25}{9}$



Center: _____

Radius: _____

Find the equation of the **circle** in standard form that satisfies the given conditions.

3. The circle has center $(0, 0)$ and passes through $(-3, 4)$.

4. The circle has center $(-4, -3)$ and passes through $(-1, -1)$.

5. The endpoints of the diameter of the circle are $(2, 6)$ and $(-8, 4)$.

6. The circle has center $(4, -3)$ and is tangent to the x-axis.

Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

1. Center: $(5, -3)$; Radius: 3

2. Center: $(-3, 0)$; Radius: $\frac{5}{3}$

3. $x^2 + y^2 = 25$

4. $(x + 4)^2 + (y + 3)^2 = 13$

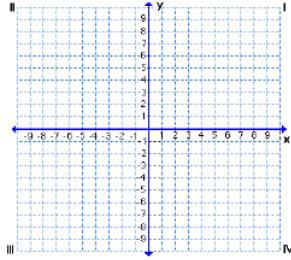
5. $(x + 3)^2 + (y - 5)^2 = 26$

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

Conic Sections ... Set 1

Graph the **ellipse** and identify the center, vertices, and foci.

7. $\frac{x^2}{9} + \frac{y^2}{25} = 1$

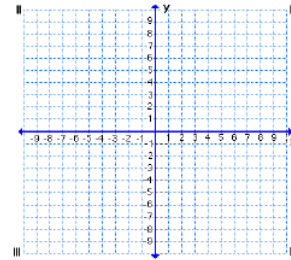


Center: _____

Vert: _____

Foci: _____

8. $4x^2 + 9y^2 = 36$

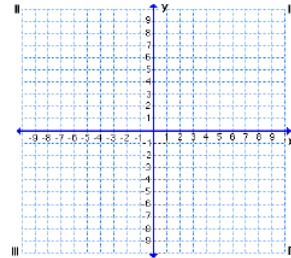


Center: _____

Vert: _____

Foci: _____

9. $x^2 + 4y^2 = 36$

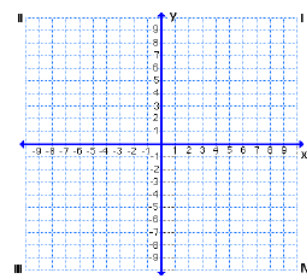


Center: _____

Vert: _____

Foci: _____

10. $(x + 1)^2 + \frac{(y-3)^2}{4} = 1$

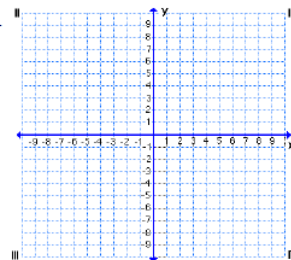


Center: _____

Vert: _____

Foci: _____

11. $\frac{(x-1)^2}{4} + \frac{(y+2)^2}{9} = 1$

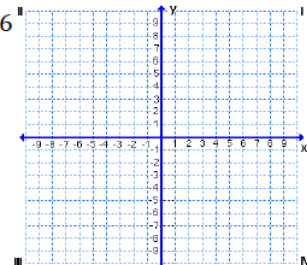


Center: _____

Vert: _____

Foci: _____

12. $36(x + 4)^2 + (y + 3)^2 = 36$



Center: _____

Vert: _____

Foci: _____

Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

7. C: (0, 0); V: (0, ± 5); F: (0, ± 4) 8. C: (0, 0); V: (± 3 , 0); F: ($\pm\sqrt{5}$, 0) 9. C: (0, 0); V: (± 6 , 0); F: ($\pm 3\sqrt{3}$, 0)

10. C: (-1, 3); V: (-1, 5), (-1, 1); F: (-1, $3 \pm \sqrt{3}$) 11. C: (1, -2); V: (1, 1), (1, -5); F: (1, $-2 \pm \sqrt{5}$)

12. C: (-4, -3); V: (-4, 3), (-4, -9); F: (-4, $-3 \pm \sqrt{35}$)

Conic Sections ... Set 1

Find the standard form of the equation of each ellipse.

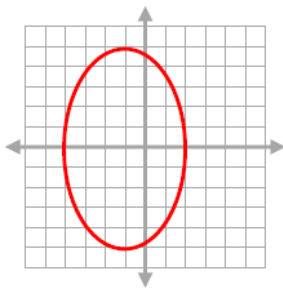
13. Foci $(0, \pm 3)$, vertices $(0, \pm 5)$

14. Major axis horizontal with length 12;
length of minor axis 4; center: $(-1, 3)$

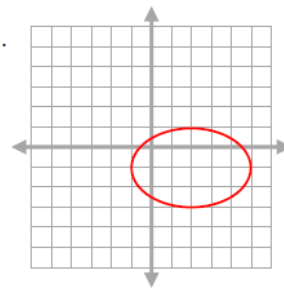
15. Foci $(\pm 5, 0)$, length of major axis 12

16. Endpoints of major axis: $(2, 2)$ & $(8, 2)$
Endpoints of minor axis: $(5, 3)$ & $(5, 1)$

17.



18.



Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

13. $\frac{x^2}{16} + \frac{y^2}{25} = 1$

14. $\frac{(x+1)^2}{36} + \frac{(y-3)^2}{4} = 1$

15. $\frac{x^2}{36} + \frac{y^2}{11} = 1$

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

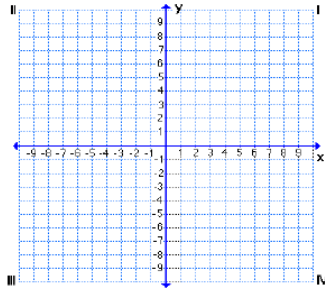
17. $\frac{(x+1)^2}{9} + \frac{y^2}{25} = 1$

18. $\frac{(x-2)^2}{9} + \frac{(y+1)^2}{4} = 1$

Conic Sections ... Set 1

Graph the **hyperbola** and identify the center, vertices, slopes of asymptotes, and foci.

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



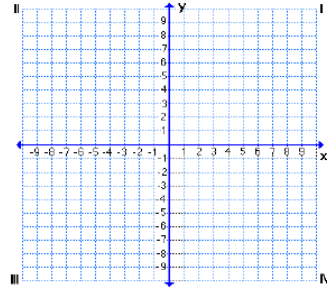
Center: _____

Vertices: _____

Foci: _____

Asymptotes: _____

20. $4x^2 - y^2 = 16$



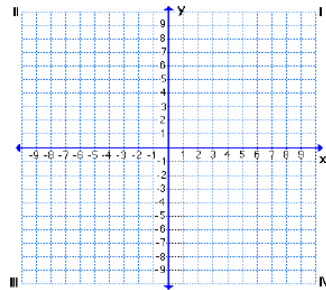
Center: _____

Vertices: _____

Foci: _____

Asymptotes: _____

21. $4(x - 1)^2 - 9(y + 2)^2 = 36$



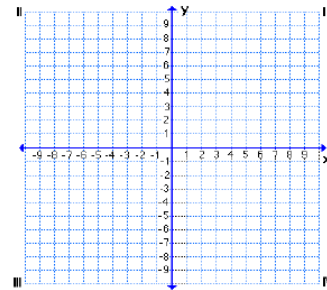
Center: _____

Vertices: _____

Foci: _____

Asymptotes: _____

22. $\frac{(y+1)^2}{25} - \frac{(x-2)^2}{9} = 1$



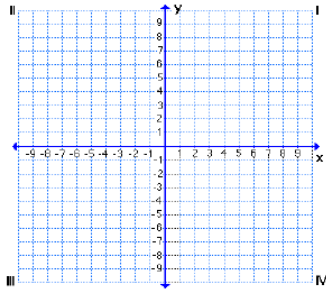
Center: _____

Vertices: _____

Foci: _____

Asymptotes: _____

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



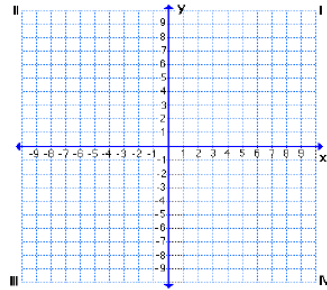
Center: _____

Vertices: _____

Foci: _____

Asymptotes: _____

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



Center: _____

Vertices: _____

Foci: _____

Asymptotes: _____

Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

19. C: $(0, 0)$; V: $(0, \pm 3)$; F: $(0, \pm 5)$; A: $\pm \frac{3}{4}$ 20. C: $(0, 0)$; V: $(\pm 2, 0)$; F: $(\pm 2\sqrt{5}, 0)$; A: $\pm \frac{4}{2}$
21. C: $(1, -2)$; V: $(-2, -2), (4, -2)$; F: $(1 \pm \sqrt{13}, -2)$; A: $\pm \frac{2}{3}$
22. C: $(2, -1)$; V: $(2, 4), (2, -6)$; F: $(2, -1 \pm \sqrt{34})$; A: $\pm \frac{5}{3}$
23. C: $(3, -2)$; V: $(3, 3), (3, -7)$; F: $(3, -2 \pm \sqrt{41})$; A: $\pm \frac{5}{4}$
24. C: $(2, -3)$; V: $(-3, -3), (7, -3)$; F: $(2 \pm \sqrt{41}, -3)$; A: $\pm \frac{4}{5}$

Conic Sections ... Set 1

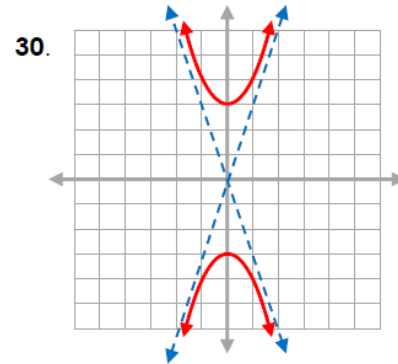
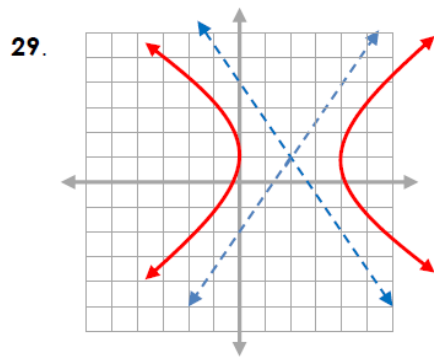
Find the standard form of the equation of each *hyperbola*.

25. Foci $(0, \pm 4)$, vertices $(0, \pm 2)$

26. Vertices $(\pm 4, 0)$, Asymptotes: $y = \pm 3x$

27. Endpoints of transverse axis: $(\pm 6, 0)$
Asymptotes: $y = \pm 2x$

28. Foci $(0, \pm 3)$, length of transverse axis 2



Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

$$25. \frac{y^2}{4} - \frac{x^2}{12} = 1$$

$$26. \frac{x^2}{16} - \frac{y^2}{144} = 1$$

$$27. \frac{x^2}{36} - \frac{y^2}{144} = 1$$

$$28. \frac{y^2}{1} - \frac{x^2}{8} = 1$$

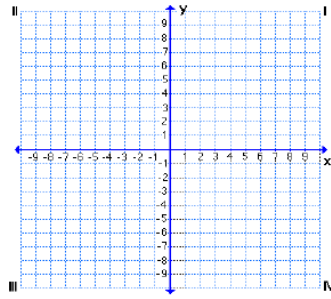
$$29. \frac{(x-2)^2}{4} - \frac{(y-1)^2}{9} = 1$$

$$30. \frac{y^2}{9} - \frac{x^2}{1} = 1$$

Conic Sections ... Set 1

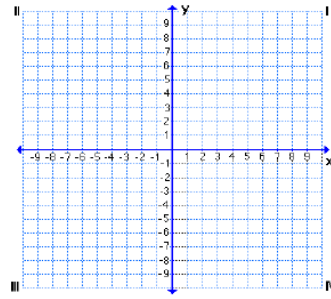
Graph the **parabola** and identify the vertex, directrix, and focus.

31. $y^2 = -12x$



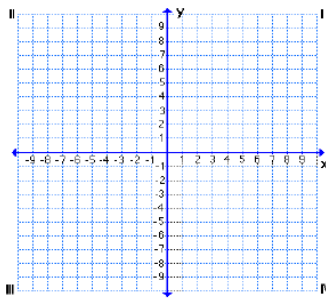
Vertex: _____
 Dir: _____
 Focus: _____

32. $x^2 = 8y$



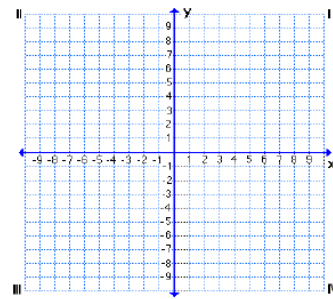
Vertex: _____
 Dir: _____
 Focus: _____

33. $6(x + 1)^2 + 12(y - 3) = 0$



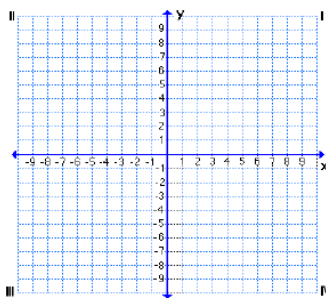
Vertex: _____
 Dir: _____
 Focus: _____

34. $y^2 - 12(x + 2) = 0$



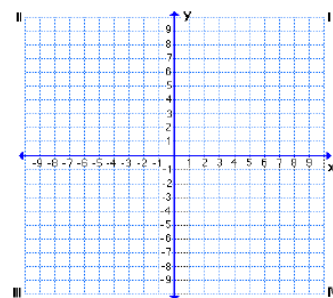
Vertex: _____
 Dir: _____
 Focus: _____

35. $(x + 2)^2 = -8(y + 2)$



Vertex: _____
 Dir: _____
 Focus: _____

36. $(y - 1)^2 = -8x$



Vertex: _____
 Dir: _____
 Focus: _____

Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

- 31.** V: $(0, 0)$; D: $x = 3$; F: $(-3, 0)$ **32.** V: $(0, 0)$; D: $y = -2$; F: $(0, 2)$ **33.** V: $(-1, 3)$; D: $y = 3.5$; F: $(-1, 2.5)$
34. V: $(-2, 0)$; D: $x = -5$; F: $(1, 0)$ **35.** V: $(-2, -2)$; D: $y = 0$; F: $(-2, -4)$ **36.** V: $(0, 1)$; D: $x = 2$; F: $(-2, 1)$

Conic Sections ... Set 1

Write an equation in standard form for the *parabola* satisfying the given conditions.

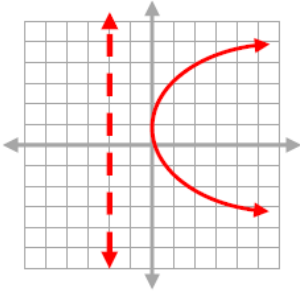
37. Focus: $(9, 0)$; Directrix: $x = -9$

38. Focus: $(-10, 0)$; Directrix: $x = 10$

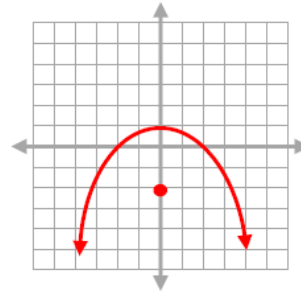
39. Vertex: $(5, -2)$; Focus $(7, -2)$

40. Focus: $(2, 4)$; Directrix: $x = -4$

41.



42.



Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

37. $y^2 = 36x$

38. $y^2 = -40x$

39. $(y + 2)^2 = 8(x - 5)$

40. $(y - 4)^2 = 12(x - 2)$

41. $(y - 1)^2 = 8x$

42. $x^2 = -12(y - 1)$

Conic Sections ... Set 1

Convert the equation to standard form by completing the square. Then identify what type of conic section the equation represents. If it is a circle, ellipse, or hyperbola, then name its center. If it is a parabola, then name its vertex.

43. $x^2 + 6x + 8y + 1 = 0$

44. $9y^2 - 4x^2 - 18y + 24x - 63 = 0$

45. $4x^2 + 36y - 32x + 9y^2 + 64 = 0$

46. $9x^2 + 16y^2 - 18x + 64y - 71 = 0$

47. $4x^2 - y^2 + 32x + 6y + 39 = 0$

48. $x^2 + y^2 - 6x + 8y = 1$

49. $4x^2 + 4y^2 - 24x + 32y - 4 = 0$

50. $y^2 + 8y - 4x + 8 = 0$

Conic Sections ... Set 1

Answers

Conics Test Review

Pre-Calculus

43. $(x + 3)^2 = -8(y - 1)$; Parabola; V: $(-3, 1)$

44. $\frac{(y-1)^2}{4} - \frac{(x-3)^2}{9} = 1$; Hyperbola; C:(3, 1)

45. $\frac{(x-4)^2}{9} + \frac{(y+2)^2}{4} = 1$; Ellipse; C: $(4, -2)$

46. $\frac{(x-1)^2}{16} + \frac{(y+2)^2}{9} = 1$; Ellipse; C:(1, -2)

47. $\frac{(x+4)^2}{4} - \frac{(y-3)^2}{16} = 1$; Hyperbola; C:(-4, 3)

48. $(x - 3)^2 + (y + 4)^2 = 26$; Circle; C: $(3, -4)$

49. $(x - 3)^2 + (y + 4)^2 = 26$; Circle; C: $(3, -4)$

50. $(y + 4)^2 = 4(x + 2)$; Parabola; V: $(-2, -4)$