

7.1 Conic Sections 2019-20

Identify each equation as a parabola (p), hyperbola (h), ellipse (e), or circle (c).

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

_____ 2. $3x^2 + 2y - 4x^2 = 12$

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

_____ 4. $y = 8(x-7)^2 + 10$

_____ 5. $x^2 + 3x + y^2 + 8x = 25$

_____ 6. $3x^2 - 4x + 3y + 2x - 50 = 0$

_____ 7. $3y^2 - 2x^2 = 12$

_____ 8. $\frac{x^2}{256} + \frac{y^2}{1} = 1$

_____ 9. $3x - 3y^2 = 36$

_____ 10. $-y^2 + 2x + 3x^2 - 40 = 0$

_____ 11. $5x^2 + 25x + 3y^2 - 6y + 30 = 0$

_____ 12. $y^2 - x^2 = 4$

_____ 13. $y = -3x^2 - 4$

_____ 14. $(x-6)^2 + (y-6)^2 = 144$

_____ 15. $x^2 + y^2 = 9$

_____ 16. $x + y^2 - 2 = 0$

_____ 17. $\frac{x^2}{121} - \frac{y^2}{9} = 1$

_____ 18. $\frac{x^2}{169} + \frac{y^2}{144} = 1$

_____ 19. $\frac{x^2}{9} - \frac{y^2}{144} = 1$

_____ 20. $x - 3(y-1)^2 = 4$

_____ 21. $\frac{y^2}{9} - \frac{x^2}{16} = 1$

_____ 22. $\frac{x^2}{36} - \frac{y^2}{16} = 1$

_____ 23. $\frac{x^2}{100} + \frac{y^2}{36} = 1$

_____ 24. $0 = 2(x-1)^2 + 1 - y$

_____ 25. $\left(x + \frac{2}{9}\right)^2 + \left(y + \frac{5}{9}\right)^2 = \frac{4}{9}$

_____ 26. center is (3, 4); foci at (5, 4) & (1, 4); vertices at (8, 4) and (-2, 4)

_____ 27. vertex (2, 6); opens up; focus (2, 7) directrix is $y = 5$

_____ 28. center is (0, 0); asymptotes

$$y = \pm \frac{3}{4}x$$
 . Vertices (4, 0) & (-4, 0).

_____ 29. vertex is (-2, 2); opens down; focus (-2, 0); directrix $y = 4$

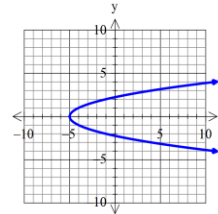
_____ 30. center is (-2, -6); $r = 4$

_____ 31. center is (0, 0); The asymptotes

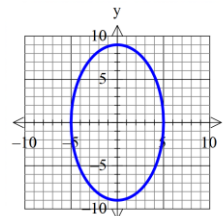
are $y = \pm \frac{1}{2}x$; vertices (0, 5) & (0, -5).

_____ 32. vertex is (2, 4); opens right; focus (3, 4); directrix is $x = 1$

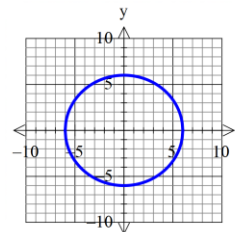
_____ 33.



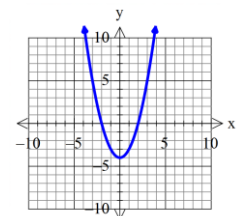
_____ 34.



_____ 35.



_____ 36.



Parabolas – Identify the direction of opening, focal width (4p) and the vertex (h, k) for each equation (make sure it is in the correct form).

37. $(x-3)^2 = 6(y+10)$

Opens _____

Focal Width _____

Vertex _____

38. $\frac{1}{2}(x-12) = (y+17)^2$

Opens _____

Focal Width _____

Vertex _____

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

Opens _____

Focal Width _____

Vertex _____

Hyperbolas – Identify the center (h, k); the a value; the b value; and whether the transverse axis is vertical or horizontal. (simplify the radicals, no decimals)

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

Center _____

a= _____

b= _____

axis _____

41. $\frac{(x+1)^2}{100} - \frac{y^2}{49} = 1$

Center _____

a= _____

b= _____

axis _____

42. $4(x-10)^2 - 6(y+1)^2 = 12$

Center _____

a= _____

b= _____

axis _____

Ellipse – Identify the center (h, k); the a value; the b value; and whether the major axis is vertical or horizontal. (simplify the radicals, no decimals)

43. $\frac{x^2}{169} + \frac{y^2}{144} = 1$

Center _____

a= _____

b= _____

axis _____

44. $\frac{(x+2)^2}{20} + \frac{(y-6)^2}{30} = 1$

Center _____

a= _____

b= _____

axis _____

45. $8(x-7)^2 + (y+4)^2 = 16$

Center _____

a= _____

b= _____

axis _____

Circle – Identify the center (h, k); and the radius (simplify the radicals, no decimals)

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

Center _____

radius _____

47. $x^2 + (y+19)^2 = 18$

Center _____

radius _____

48. $x^2 + y^2 = 20$

Center _____

radius _____