

# Practice 10-4

Ellipses

Find the foci for each equation of an ellipse. Then graph the ellipse.

1.  $\frac{x^2}{36} + \frac{y^2}{81} = 1$

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

3.  $\frac{x^2}{9} + \frac{y^2}{100} = 1$

4.  $16x^2 + 25y^2 = 1600$

5.  $4x^2 + y^2 = 49$

6.  $\frac{x^2}{64} + \frac{y^2}{144} = 1$

7.  $9x^2 + 25y^2 = 225$

8.  $25x^2 + 4y^2 = 100$

9.  $\frac{x^2}{81} + \frac{y^2}{9} = 1$

10.  $\frac{x^2}{121} + \frac{y^2}{4} = 1$

11.  $49x^2 + y^2 = 49$

12.  $4x^2 + 9y^2 = 36$

13.  $\frac{x^2}{4} + \frac{y^2}{9} = 1$

14.  $\frac{x^2}{9} + \frac{y^2}{4} = 1$

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

16.  $\frac{x^2}{25} + \frac{y^2}{36} = 1$

17.  $\frac{x^2}{81} + \frac{y^2}{16} = 1$

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

19.  $3x^2 + 9y^2 = 9$

20.  $4x^2 + 8y^2 = 16$

21.  $12x^2 + 4y^2 = 48$

Write an equation of each ellipse in standard form with center at the origin and with the given characteristics.

22. height 8; width 18

23. vertices  $(\pm 4, 0)$ ; co-vertices  $(0, \pm 2)$

24. foci  $(\pm 5, 0)$ ; co-vertices  $(0, \pm 2)$

25. foci  $(0, \pm 2)$ ; co-vertices  $(\pm 1, 0)$

26. foci  $(\pm 3, 0)$ ; co-vertices  $(0, \pm 1)$

27. height 10; width 8

28. height 3; width 1

29. vertices  $(\pm 2, 0)$ ; co-vertices  $(0, \pm 1)$

30. foci  $(\pm 1, 0)$ ; co-vertices  $(0, \pm 2)$

31. foci  $(0, \pm 3)$ ; co-vertices  $(\pm 3, 0)$

32. vertex  $(6, 0)$ ; co-vertex  $(0, -5)$

33. vertex  $(0, 10)$ ; co-vertex  $(-7, 0)$

34. height 28 ft; width 20 ft

35. height 20 ft; width 28 ft

36. height 50 ft; width 40 ft

37. height 9 cm; width 12 cm

38. vertex  $(0, 2)$ ; co-vertex  $(-1, 0)$

39. vertex  $(4, 0)$ ; co-vertex  $(0, 2)$

40. foci  $(0, \pm 4)$ ; co-vertices  $(\pm 4, 0)$

41. foci  $(\pm 4, 0)$ ; co-vertices  $(0, \pm 2)$

42. vertex  $(9, 0)$ ; co-vertex  $(0, -6)$

43. vertex  $(11, 0)$ ; co-vertex  $(0, -10)$

44. foci  $(\pm 2, 0)$ ; co-vertices  $(0, \pm 4)$

45. foci  $(\pm 1, 0)$ ; co-vertices  $(0, \pm 5)$

46. foci  $(\pm 3, 0)$ ; co-vertices  $(0, \pm 3)$

47. foci  $(0, \pm 2)$ ; co-vertices  $(\pm 1, 0)$

48. vertex  $(-7, 0)$ ; co-vertex  $(0, -5)$

49. vertex  $(-2, 0)$ ; co-vertex  $(0, -1)$

50. Blinn College is building a new track for cycling teams. The track is to be elliptical. The available land is 200 yd long and 100 yd wide. Find the equation of the ellipse.

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