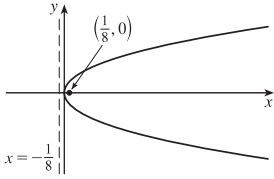


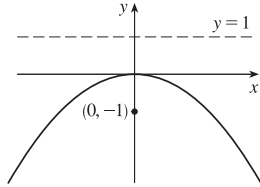
ANSWERS

S Click here for solutions.

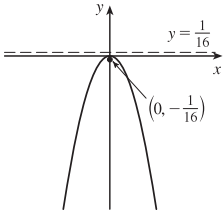
1. $(0, 0), (\frac{1}{8}, 0), x = -\frac{1}{8}$



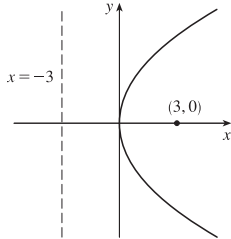
2. $(0, 0), (0, -1), y = 1$



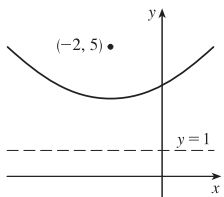
3. $(0, 0), (0, -\frac{1}{16}), y = \frac{1}{16}$



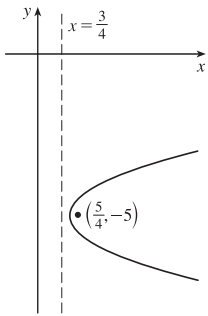
4. $(0, 0), (3, 0), x = -3$



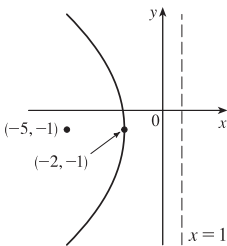
5. $(-2, 3), (-2, 5), y = 1$



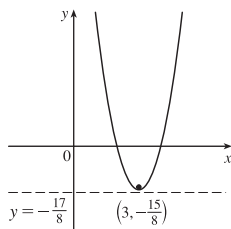
6. $(1, -5), (\frac{5}{4}, -5), x = \frac{3}{4}$



7. $(-2, -1), (-5, -1), x = 1$



8. $(3, -2), (3, -\frac{15}{8}), y = -\frac{17}{8}$

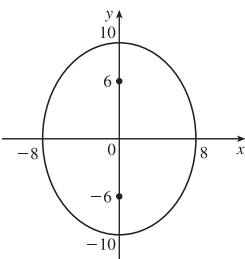
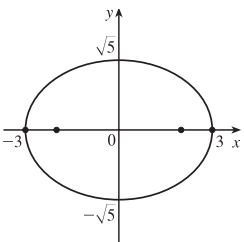


9. $x = -y^2$, focus $(-\frac{1}{4}, 0)$, directrix $x = \frac{1}{4}$

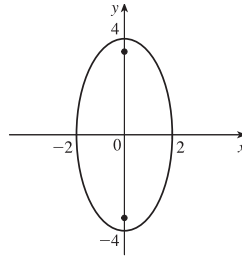
10. $(x - 2)^2 = 2(y + 2)$, focus $(2, -\frac{3}{2})$, directrix $y = -\frac{5}{2}$

11. $(\pm 3, 0), (\pm 2, 0)$

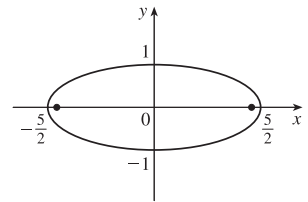
12. $(0, \pm 10), (0, \pm 6)$



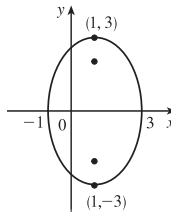
13. $(0, \pm 4), (0, \pm 2\sqrt{3})$



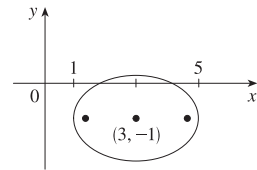
14. $(\pm \frac{5}{2}, 0), (\pm \frac{\sqrt{21}}{2}, 0)$



15. $(1, \pm 3), (1, \pm \sqrt{5})$



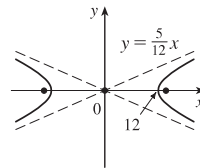
16. $(1, -1)$ and $(5, -1), (3 \pm \sqrt{2}, -1)$



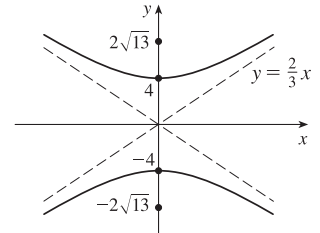
17. $\frac{x^2}{4} + \frac{y^2}{9} = 1$, foci $(0, \pm\sqrt{5})$

18. $\frac{(x - 2)^2}{9} + \frac{(y - 1)^2}{4} = 1$, foci $(2 \pm \sqrt{5}, 1)$

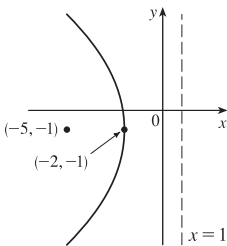
19. $(\pm 12, 0), (\pm 13, 0), y = \pm \frac{5}{12}x$



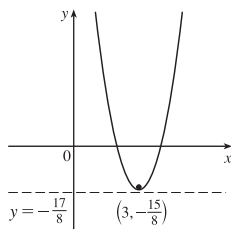
20. $(0, \pm 4), (0, \pm 2\sqrt{13}), y = \pm \frac{2}{3}x$



7. $(-2, -1), (-5, -1), x = 1$



8. $(3, -2), (3, -\frac{15}{8}), y = -\frac{17}{8}$

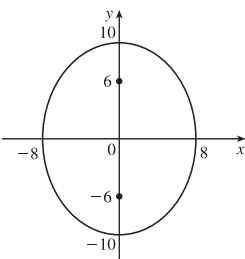
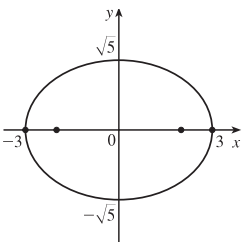


9. $x = -y^2$, focus $(-\frac{1}{4}, 0)$, directrix $x = \frac{1}{4}$

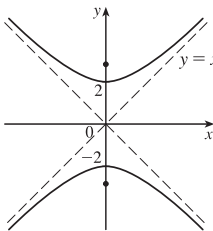
10. $(x - 2)^2 = 2(y + 2)$, focus $(2, -\frac{3}{2})$, directrix $y = -\frac{5}{2}$

11. $(\pm 3, 0), (\pm 2, 0)$

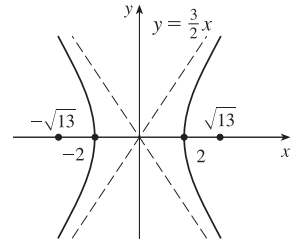
12. $(0, \pm 10), (0, \pm 6)$



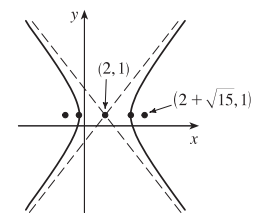
21. $(0, \pm 2), (0, \pm 2\sqrt{2}), y = \pm x$



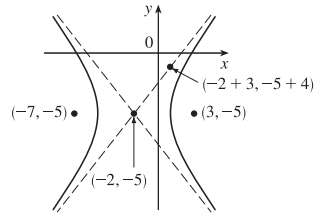
22. $(\pm 2, 0), (\pm \sqrt{13}, 0), y = \pm \frac{3}{2}x$



23. $(2 \pm \sqrt{6}, 1), (2 \pm \sqrt{15}, 1), y - 1 = \pm(\sqrt{6}/2)(x - 2)$



24. $(-5, -5)$ and $(1, -5)$,
 $(-7, -5)$ and $(3, -5)$,
 $y + 5 = \pm \frac{4}{3}(x + 2)$



25. Parabola, $(0, -1)$, $(0, -\frac{3}{4})$ 26. Hyperbola, $(\pm 1, 0)$, $(\pm\sqrt{2}, 0)$

27. Ellipse, $(\pm\sqrt{2}, 1)$, $(\pm 1, 1)$ 28. Parabola, $(0, 4)$, $(\frac{3}{2}, 4)$

29. Hyperbola, $(0, 1)$, $(0, -3)$; $(0, -1 \pm \sqrt{5})$

30. Ellipse, $(-\frac{1}{2}, \pm 1)$, $(-\frac{1}{2}, \pm\sqrt{3}/2)$

31. $x^2 = -8y$ 32. $y^2 = 24(x - 1)$ 33. $y^2 = -12(x + 1)$

34. $(x - 3)^2 = 16(y - 2)$ 35. $y^2 = 16x$

36. $2x^2 + 4x - y + 3 = 0$ 37. $\frac{x^2}{25} + \frac{y^2}{21} = 1$

38. $\frac{x^2}{144} + \frac{y^2}{169} = 1$ 39. $\frac{x^2}{12} + \frac{(y - 4)^2}{16} = 1$

40. $\frac{(x - 4)^2}{25} + \frac{(y + 1)^2}{9} = 1$ 41. $\frac{(x - 2)^2}{9} + \frac{(y - 2)^2}{5} = 1$

42. $\frac{2x^2}{9 + \sqrt{17}} + \frac{2y^2}{1 + \sqrt{17}} = 1$

43. $y^2 - \frac{1}{8}x^2 = 1$ 44. $\frac{1}{16}x^2 - \frac{1}{20}y^2 = 1$

45. $\frac{(x - 4)^2}{4} - \frac{(y - 3)^2}{5} = 1$

46. $\frac{1}{9}(y - 3)^2 - \frac{1}{16}(x - 2)^2 = 1$ 47. $\frac{1}{9}x^2 - \frac{1}{36}y^2 = 1$

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

49. $\frac{x^2}{3,763,600} + \frac{y^2}{3,753,196} = 1$

50. (a) $p = \frac{5}{2}$, $y^2 = 10x$ (b) $2\sqrt{110}$

51. (a) $\frac{121x^2}{1,500,625} - \frac{121y^2}{3,339,375} = 1$ (b) ≈ 248 mi

54. $3x^2 - 2xy + 3y^2 = 8$

55. (a) Ellipse (b) Hyperbola (c) No curve

56. (b) $-x_0$ 57. 9.69 58. 3.64×10^{10} km

