

6.1 Practice Set

1. How can you tell by looking at the equation whether a parabola opens vertically or horizontally?
2. What is the meaning of the axis of symmetry?
3. Describe the general technique for graphing a parabola.

Graph each of the following parabolas. State the vertex and axis of symmetry for each. Give the x-intercept(s), y-intercept(s), domain, and range as well.

4. $y = 2(x - 3)^2 + 1$
5. $y = -3(x + 5)^2$
6. $f(x) = 4x^2 - 5$
7. $y = x^2 + 4x - 6$
8. $y = -x^2 - 2x - 5$
9. $g(x) = x^2 - 8x + 15$
10. $y = x^2 - 5x + 2$
11. $y = 6x^2 + 12x + 18$
12. $y = -4x^2 - 8x - 12$
13. $y = 3x^2 + 4x + 4$
14. $y = -4x^2 + 16x + 8$
15. $x = 3y^2$
16. $x = -2y^2$
17. $x = (y + 2)^2 - 3$
18. $x = -2(y - 4)^2 + 1$

- 19. $x = y^2 - 8y + 3$
- 20. $x = 4y^2 - 16y + 12$
- 21. $r(y) = 3y^2 + 12y + 6$
- 22. $x = -3y^2 - 18y - 3$

Distributed Practice Problems

Graph each of the following functions. Give the x-intercept(s), y-intercept, domain, range, and the equation(s) of any asymptote(s).

- 23. $y = 3^{x-2} + 4$
- 24. $y = -e^{x+2} - 3$
- 25. $y = -\log_5(x - 2) - 1$
- 26. $y = \ln(x - 5)$
- 27. $y = -\sqrt{x + 1}$
- 28. $y = |x - 5| + 2$
- 29. $y = x^3 - 6$
- 30. $y = \frac{1}{x+2} + 3$