

Practice 9–1

Exploring Quadratic Graphs

Identify the vertex of each graph. Tell whether it is a minimum or a maximum.

1. $y = -3x^2$

2. $y = -7x^2$

3. $f(x) = 0.5x^2$

4. $f(x) = 5x^2$

5. $y = -4x^2$

6. $f(x) = \frac{3}{2}x^2$

Order each group of quadratic functions from widest to narrowest graph.

7. $y = x^2, y = 5x^2, y = 3x^2$

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

9. $f(x) = 5x^2, f(x) = -4x^2, f(x) = 2x^2$

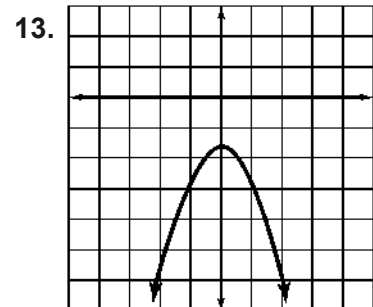
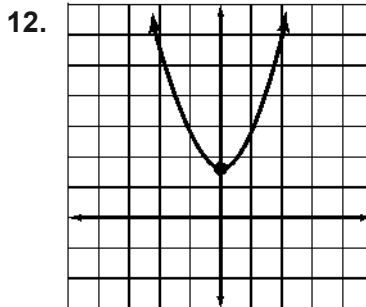
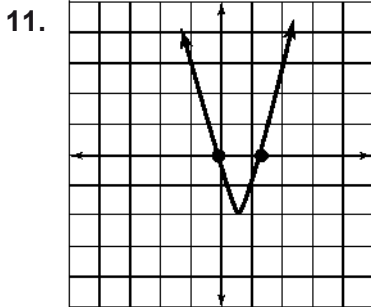
10. $y = -\frac{1}{2}x^2, y = \frac{1}{3}x^2, y = -3x$

Match each graph with its function.

A. $f(x) = 3x^2 + 5$

B. $f(x) = -3x^2 - 5$

C. $f(x) = 3x^2 - 5x$



Graph each function.

14. $y = 4x^2$

15. $y = -3x^2$

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

17. $f(x) = 2x^2 - 2$

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

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

20. $y = \frac{1}{2}x^2 - 3$

21. $f(x) = \frac{1}{3}x^2 + 5$

22. $y = \frac{1}{3}x^2 - 4$

23. $f(x) = 2.5x^2 + 3$

24. $y = 2.5x^2 + 5$

25. $f(x) = 5x^2 + 8$

26. $y = 5x^2 - 8$

27. $y = -3.5x^2 - 4$

28. $f(x) = 3x^2 - 2$

29. The price of a stock on the NYSE is modeled by the function $y = 0.005x^2 + 10$, where x is the number of months the stock has been available.

- Graph the function.
- What x -values make sense for the domain? Explain why.
- What y -values make sense for the range? Explain why.

30. You are designing a poster. The poster is 24 in. wide by 36 in. high. On the poster, you want to place a square photograph and some printing. If each side of the photograph is x in., the function $y = 864 - x^2$ gives the area of the poster available for printing.

- Graph the function.
- What x -values make sense for the domain? Explain why.
- What y -values make sense for the range? Explain why.