

Practice B

For use with pages 249–255

Write the quadratic function in standard form. Determine whether the graph of the function opens up or down.

1. $y = 3 - 2x - x^2$

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

3. $y = -5 - 4x^2$

Find the vertex and axis of symmetry of the parabola.

4. $y = x^2 - 4x + 8$

5. $y = -3x^2 + x$

6. $y = x^2 - x + 4$

Graph the quadratic function. Label the vertex and axis of symmetry.

7. $y = x^2$

8. $y = x^2 + 1$

9. $y = -x^2 + 2$

10. $y = x^2 - 2x$

11. $y = 2x^2 - 12x$

12. $y = -x^2 + 8x + 2$

13. $y = x^2 + 14x - 9$

14. $y = -2x^2 - 4x + 7$

15. $y = 3x^2 + 3x - 1$

Graph the quadratic function. Label the vertex and axis of symmetry.

16. $y = (x + 1)^2 + 3$

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

18. $y = (x - 2)^2 - 5$

19. $y = -(x + 2)^2 + 1$

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

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

Graph the quadratic function. Label the vertex and axis of symmetry.

22. $y = (x + 3)(x + 4)$

23. $y = (x + 4)(x - 1)$

24. $y = (x - 2)(x - 4)$

25. $y = -(x + 4)(x + 1)$

26. $y = -2(x - 3)(x + 1)$

27. $y = -3x(x + 2)$

Minimum Cost A manufacturer of lighting fixtures has daily production costs modeled by $y = 0.25x^2 - 10x + 800$ where y is the total cost in dollars and x is the number of fixtures produced.

28. Sketch the graph of the model. Label the vertex.

29. What is the minimum daily production cost, y ?

30. How many fixtures should be produced each day to yield a minimum cost?

Price of Gasoline The price of gasoline at a local station throughout the month of March is modeled by $y = -0.014x^2 + 0.448x - 2.324$ where $x = 1$ corresponds to March 1.

31. On what day in March did the price of gasoline reach its maximum?

32. What was the highest price of gasoline in March?