

8.4**Practice A**

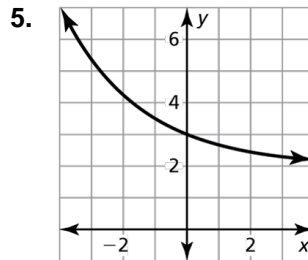
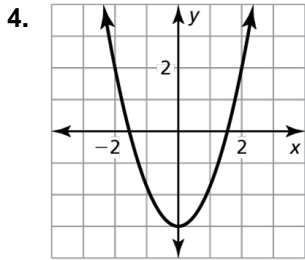
In Exercises 1–3, determine whether the function is *even*, *odd*, or *neither*.

1. $g(x) = 4^x - 1$

2. $f(x) = 2x - 5$

3. $h(x) = 2x^2 + 5$

In Exercises 4 and 5, determine whether the function represented by the graph is *even*, *odd*, or *neither*.



In Exercises 6–8, find the vertex and the axis of symmetry of the graph of the function.

6. $f(x) = 4(x + 2)^2$

7. $f(x) = \frac{1}{3}(x - 3)^2$

8. $y = -5(x + 7)^2$

In Exercises 9–11, graph the function. Compare the graph to the graph of $f(x) = x^2$.

9. $g(x) = 2(x + 1)^2$

10. $g(x) = 3(x - 2)^2$

11. $g(x) = \frac{1}{4}(x + 6)^2$

In Exercises 12–14, find the vertex and the axis of symmetry of the graph of the function.

12. $y = -5(x + 3)^2 - 2$

13. $f(x) = 2(x - 2)^2 + 5$

14. $y = -3(x + 5)^2 - 4$

In Exercises 15 and 16, graph the function. Compare the graph to the graph of $f(x) = x^2$.

15. $g(x) = (x - 3)^2 + 2$

16. $g(x) = -(x + 2)^2 - 4$

In Exercises 17 and 18, rewrite the quadratic function in vertex form.

17. $y = 2x^2 + 4x - 1$

18. $f(x) = 3x^2 - 12x + 4$

19. The graph of $y = x^2$ is translated 4 units left and 3 units down. Write an equation for the function in vertex form and in standard form. Describe advantages of writing the function in each form.

8.4 Practice B

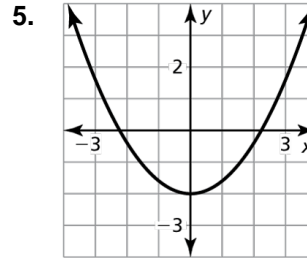
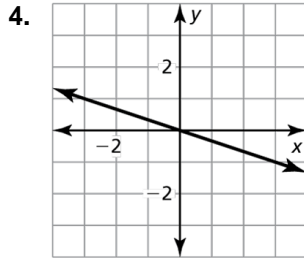
In Exercises 1–3, determine whether the function is *even*, *odd*, or *neither*.

1. $f(x) = 3x^2 + 2x$

2. $g(x) = \frac{2}{3}x$

3. $h(x) = \frac{1}{3}x^2 - 2$

In Exercises 4 and 5, determine whether the function represented by the graph is *even*, *odd*, or *neither*.



In Exercises 6–8, find the vertex and the axis of symmetry of the graph of the function.

6. $f(x) = -\frac{1}{3}(x + 6)^2$

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

8. $y = -10(x + 9)^2$

In Exercises 9–11, graph the function. Compare the graph to the graph of $f(x) = x^2$.

9. $g(x) = 4(x + 2)^2$

10. $g(x) = \frac{1}{3}(x - 5)^2$

11. $g(x) = \frac{1}{6}(x - 1)^2$

In Exercises 12–14, find the vertex and the axis of symmetry of the graph of the function.

12. $y = 6(x - 4)^2 - 3$

13. $f(x) = -4(x + 1)^2 + 5$

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

In Exercises 15 and 16, graph the function. Compare the graph to the graph of $f(x) = x^2$.

15. $g(x) = 3(x + 2)^2 - 1$

16. $g(x) = -\frac{1}{2}(x - 1)^2 + 3$

In Exercises 17 and 18, rewrite the quadratic function in vertex form.

17. $y = 5x^2 - 10x + 2$

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

19. The graph of $y = x^2$ is reflected in the x -axis and translated 3 units right and 2 units up. Write an equation for the function in vertex form and in standard form. Describe advantages of writing the function in each form.