

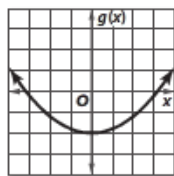
Examples
1–5, 7Describe how the graph of each function is related to the graph of $f(x) = x^2$.

1. $g(x) = x^2 - 11$ 2. $h(x) = \frac{1}{2}(x - 2)^2$ 3. $h(x) = -x^2 + 8$
 4. $g(x) = x^2 + 6$ 5. $g(x) = -4(x + 3)^2$ 6. $h(x) = -x^2 - 2$

Example 6

7. **MULTIPLE CHOICE** Which is an equation for the function shown in the graph?

- A $g(x) = \frac{1}{5}x^2 + 2$ C $g(x) = \frac{1}{5}x^2 - 2$
 B $g(x) = -5x^2 - 2$ D $g(x) = -\frac{1}{5}x^2 - 2$



Practice and Problem Solving

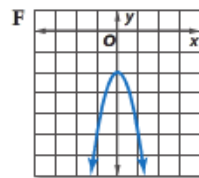
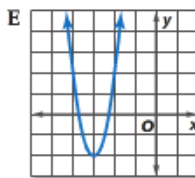
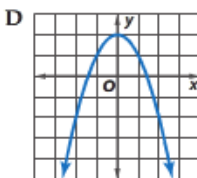
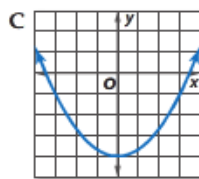
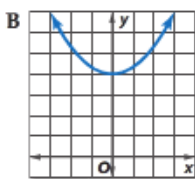
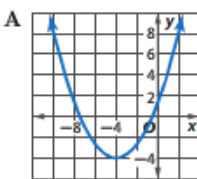
Extra Practice is on page R9.

Examples
1–5, 7Describe how the graph of each function is related to the graph of $f(x) = x^2$.

8. $g(x) = -10 + x^2$ 9. $h(x) = -7 - x^2$ 10. $g(x) = 2(x - 3)^2 + 8$
 11. $h(x) = 6 + \frac{2}{3}x^2$ 12. $g(x) = -5 - \frac{4}{3}x^2$ 13. $h(x) = 3 + \frac{5}{2}x^2$
 14. $g(x) = 0.25x^2 - 1.1$ 15. $h(x) = 1.35(x + 1)^2 + 2.6$
 16. $g(x) = \frac{3}{4}x^2 + \frac{5}{6}$ 17. $h(x) = 1.01x^2 - 6.5$

Example 6

Match each equation to its graph.



18. $y = \frac{1}{3}x^2 - 4$ 19. $y = \frac{1}{3}(x + 4)^2 - 4$ 20. $y = \frac{1}{3}x^2 + 4$
 21. $y = -3x^2 - 2$ 22. $y = -x^2 + 2$ 23. $y = (2x + 6)^2 + 2$

24. **SQUIRRELS** A squirrel 12 feet above the ground drops an acorn from a tree. The function $h = -16t^2 + 12$ models the height of the acorn above the ground in feet after t seconds. Graph the function, and compare this graph to the graph of its parent function.

CCSS REGULARITY List the functions in order from the most stretched vertically to the least stretched vertically graph.

25. $g(x) = 2x^2, h(x) = \frac{1}{2}x^2$ 26. $g(x) = -3x^2, h(x) = \frac{2}{3}x^2$
 27. $g(x) = -4x^2, h(x) = 6x^2, f(x) = 0.3x^2$ 28. $g(x) = -x^2, h(x) = \frac{5}{3}x^2, f(x) = -4.5x^2$

