

1.2 Extra Practice

In Exercises 1–12, write a function g whose graph represents the indicated transformation of the graph of f . Use technology to check your answer.

1. $f(x) = 5x - 2$; translation 5 units right $g(x) = 5x - 27$ or $g(x) = 5(x-5) - 2$

2. $f(x) = 3x + 6$; translation 4 units up $g(x) = 3x + 10$

3. $f(x) = 3 - |x - 2|$; translation 2 units left $g(x) = 3 - |x|$

4. $f(x) = |2x| + 3$; translation 2 units down $g(x) = |2x| + 1$

5. $f(x) = -x + 3$; reflection in the y -axis $g(x) = x + 3$

6. $f(x) = \frac{2}{3}x - 4$; reflection in the x -axis $g(x) = -\frac{2}{3}x + 4$

7. $f(x) = -5 + |x - 8|$; reflection in the y -axis $g(x) = -5 + |-x + 8|$

8. $f(x) = |4x - 1| + 2$; reflection in the y -axis $g(x) = |-4x - 1| + 2$

9. $f(x) = 3 - x$; horizontal stretch by a factor of 2 $g(x) = \frac{3}{2} - \frac{1}{2}x$ H.S = V.Shrink (must be < 1)
so $2 = \frac{1}{2}$

10. $f(x) = 3x + 5$; vertical shrink by a factor of $\frac{1}{3}$ $g(x) = x + \frac{5}{3}$

11. $f(x) = |3x| + 2$; horizontal shrink by a factor of $\frac{1}{3}$ $g(x) = 3|3x| + 6$
vert st.

12. $f(x) = -2|x - 2| + 4$; vertical stretch by a factor of 2 $g(x) = -4|x - 2| + 8$

In Exercises 13 and 14, write a function g whose graph represents the indicated transformations of the graph of f .

13. $f(x) = x$; translation 5 units up followed by a vertical shrink by a factor of $\frac{1}{4}$ $g(x) = \frac{1}{4}x + \frac{5}{4}$

14. $f(x) = |x|$; reflection in the x -axis followed by a translation 2 units left $g(x) = -|x + 2|$

15. You make bracelets to see at a flea market. Your revenue (in dollars) for selling x bracelets is given by $f(x) = 13x$ and your profit is \$75 less than 60% of the revenue. What is your profit for selling 50 bracelets?

$$y = 13(50)$$

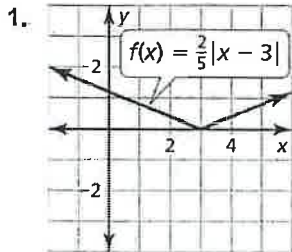
$$y = 650$$

$$650 \times .60 = 390$$

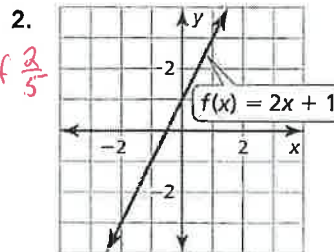
$$390 - 75 = \$315$$

1.1 Extra Practice

In Exercises 1 and 2, identify the function family to which f belongs. Compare the graph of f with the graph of its parent function.

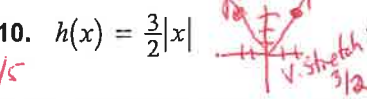
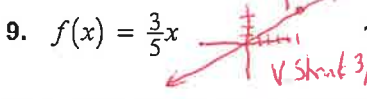
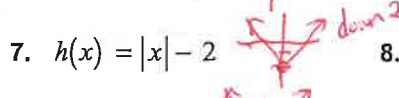
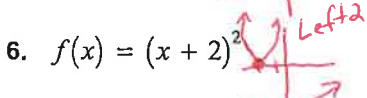
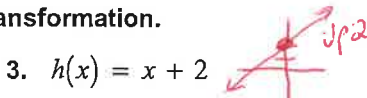


Ab Value
V Shrink by factor of $\frac{2}{5}$
Right 3

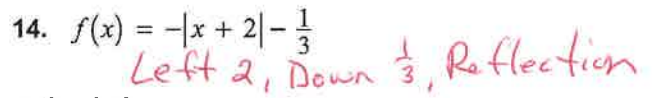
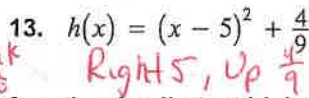
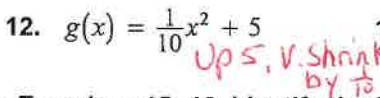


Linear
V. Stretch by 2
Up 1

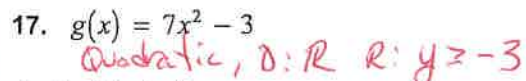
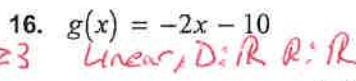
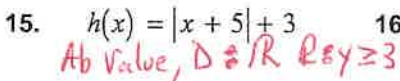
In Exercises 3–11, graph the function and its parent function. Then describe the transformation.



In Exercises 12–14, use technology to graph the function and its parent function. Then describe the transformations.



In Exercises 15–18, identify the function family to which the function belongs. Then find the domain and range. Use technology to verify your answer.



18. You are throwing a football with your friends. The height (in feet) of the ball above the ground t seconds after it is thrown is modeled by the function $f(t) = -16t^2 + 45t + 6$.

- Without graphing, identify the type of function that models the height of the football. *Quadratic*
- What is the value of t when the ball is released from your hand? Explain your reasoning. *0, time is still 0*
- How many feet above the ground is the ball when it is released from your hand? Explain. *6 feet $-16(0)^2 + 45(0) + 6 = 6$*