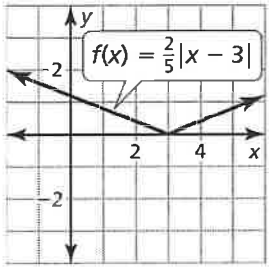
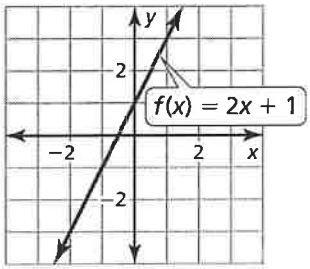
Name _____ Date _____

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.

1. 

2. 

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

3. $h(x) = x + 2$
4. $f(x) = |-x|$
5. $g(x) = -x^2$
6. $f(x) = (x + 2)^2$
7. $h(x) = |x| - 2$
8. $f(x) = -3$
9. $f(x) = \frac{3}{5}x$
10. $h(x) = \frac{3}{2}|x|$
11. $h(x) = \frac{4}{3}x^2$

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

12. $g(x) = \frac{1}{10}x^2 + 5$
13. $h(x) = (x - 5)^2 + \frac{4}{9}$
14. $f(x) = -|x + 2| - \frac{1}{3}$

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.

15. $h(x) = |x + 5| + 3$
16. $g(x) = -2x - 10$
17. $g(x) = 7x^2 - 3$

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 $f(t) = -16t^2 + 45t + 6$.

    a. Without graphing, identify the type of function that models the height of the football.

    b. What is the value of t when the ball is released from your hand? Explain your reasoning.

    c. How many feet above the ground is the ball when it is released from your hand? Explain.

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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
2. $f(x) = 3x + 6$; translation 4 units up
3. $f(x) = 3 - |x - 2|$; translation 2 units left
4. $f(x) = |2x| + 3$; translation 2 units down
5. $f(x) = -x + 3$; reflection in the y-axis
6. $f(x) = \frac{2}{3}x - 4$; reflection in the x-axis
7. $f(x) = -5 + |x - 8|$; reflection in the y-axis
8. $f(x) = |4x - 1| + 2$; reflection in the y-axis
9. $f(x) = 3 - x$; horizontal stretch by a factor of 2
10. $f(x) = 3x + 5$; vertical shrink by a factor of $\frac{1}{3}$
11. $f(x) = |3x| + 2$; horizontal shrink by a factor of $\frac{1}{3}$
12. $f(x) = -2|x - 2| + 4$; vertical stretch by a factor of 2

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 $\frac{1}{4}$
14. $f(x) = |x|$; reflection in the x-axis followed by a translation 2 units left
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?