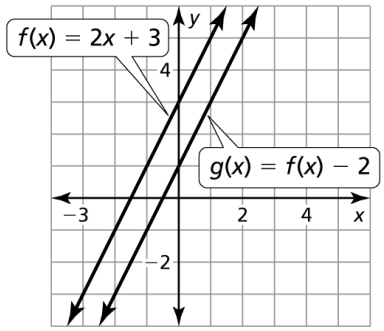
Name_____ Date _____

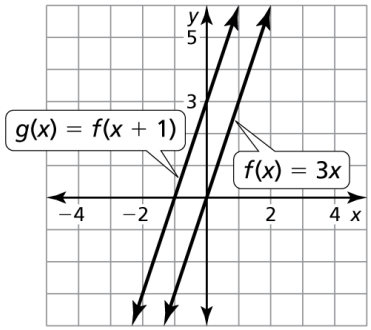
3.6 Practice A

In Exercises 1 and 2, use the graphs of *f* and *g* to describe the transformation from the graph of *f* to the graph of *g*.

1.



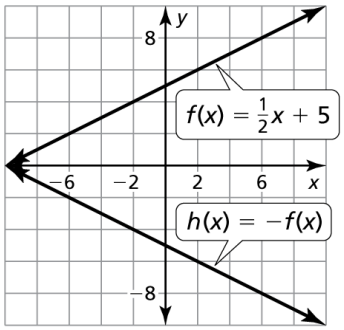
2.



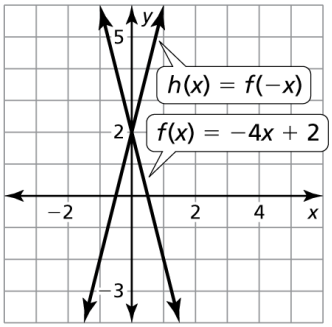
3. You and a friend start running from the same location. Your distance d (in miles) after t minutes is $d(t) = \frac{1}{7}t$. Your friend starts running 10 minutes after you. Your friend's distance f is given by the function $f(t) = d(t - 10)$. Describe the transformation from the graph of d to the graph of f.

In Exercises 4 and 5, use the graphs of *f* and *h* to describe the transformation from the graph of *f* to the graph of *h*.

4.



5.



In Exercises 6 and 7, use the graphs of *f* and *r* to describe the transformation from the graph of *f* to the graph of *r*.

6. $f(x) = x + 2; r(x) = f(3x)$

7. $f(x) = 3x + 6; r(x) = \frac{1}{3}f(x)$

In Exercises 8 and 9, write a function *g* in terms of *f* so that the statement is true.

8. The graph of g is a vertical translation 3 units down of the graph of f.

9. The graph of g is a reflection in the x-axis of the graph of f.

Name _____ Date _____

3.6 Practice B

In Exercises 1 and 2, use the graphs of *f* and *g* to describe the transformation from the graph of *f* to the graph of *g*.

1. $f(x) = -x - 3; g(x) = f(x + 5)$

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

3. The total cost C (in dollars) to rent a 14-foot by 20-foot canopy for d days is given by the function $C(d) = 15d + 30$, where the setup fee is \$30 and the charge per day is \$15. The setup fee increases by \$20. The new total cost T is given by the function $T(d) = C(d) + 20$. Describe the transformation from the graph of C to the graph of T.

In Exercises 4 and 5, use the graphs of *f* and *h* to describe the transformation from the graph of *f* to the graph of *h*.

4. $f(x) = -3 - x; h(x) = f(-x)$

5. $f(x) = \frac{1}{3}x + 1; h(x) = -f(x)$

In Exercises 6 and 7, use the graphs of *f* and *r* to describe the transformation from the graph of *f* to the graph of *r*.

6. $f(x) = 5x - 10; r(x) = f\left(\frac{2}{5}x\right)$

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

In Exercises 8–11, use the graphs of *f* and *g* to describe the transformation from the graph of *f* to the graph of *g*.

8. $f(x) = -3x + 5; g(x) = f(x - 3)$

9. $f(x) = -2x + 6; g(x) = f\left(\frac{4}{3}x\right)$

10. $f(x) = 4x - 3; g(x) = \frac{1}{2}f(x)$

11. $f(x) = -2x; g(x) = f(x) + 3$

In Exercises 12 and 13, write a function *g* in terms of *f* so that the statement is true.

12. The graph of g is a horizontal shrink by a factor of $\frac{2}{3}$ of the graph of f.

13. The graph of g is a horizontal translation 5 units left of the graph of f.

In Exercises 14–17, graph *f* and *h*. Describe the transformations from the graph of *f* to the graph of *h*.

14. $f(x) = x; h(x) = -2x + 1$

15. $f(x) = x; h(x) = \frac{3}{2}x + 2$

16. $f(x) = 2x; h(x) = 8x - 3$

17. $f(x) = 3x; h(x) = -3x - 5$