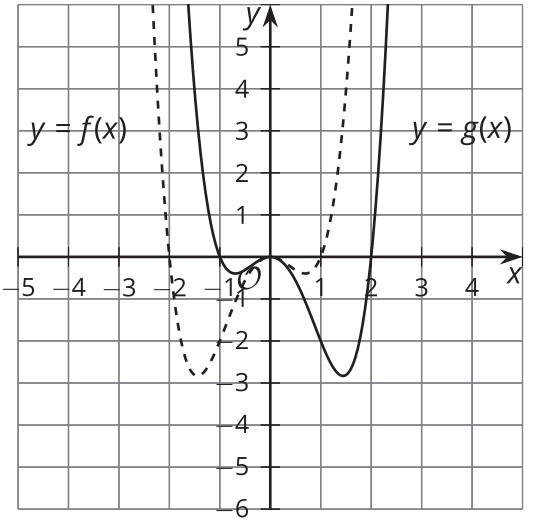
Lesson 4 Practice Problems

1. The dashed function is the graph of f and the solid function is the graph of g. Express g in terms of f.



2. The table gives some values of functions f and g.

   Which of these equations could be true for all values of x?

x	$f(x)$	$g(x)$
-2	4	$\frac{1}{4}$
-1	2	$\frac{1}{2}$
0	1	1
1	$\frac{1}{2}$	2
2	$\frac{1}{4}$	4

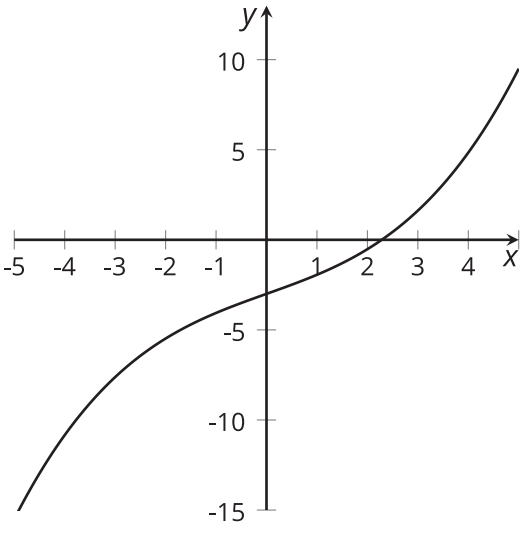
   A. $f(x) = -g(x)$

   B. $f(x) = g(-x)$

   C. $f(x) = -g(-x)$

   D. $f(x) = g(x)$

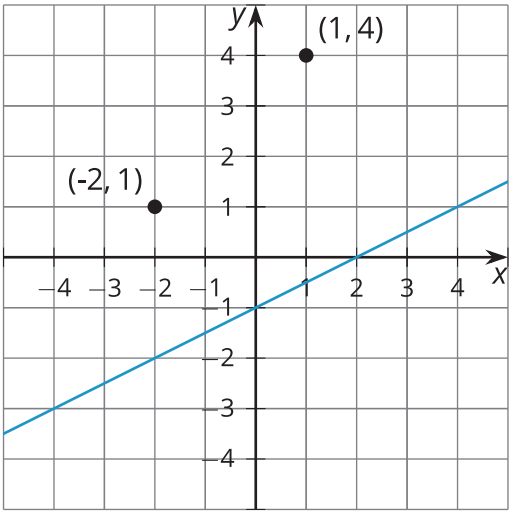
3. Here is the graph of a function f.



a. On the same axis, sketch a graph of f reflected over the y-axis and then translate it 3 units up.

b. Write an equation (in terms of f) for a function g that has the graph that you drew.

4. Describe a transformation of the line that contains the two labelled points.



(From Unit 5, Lesson 1.)

5. The thermostat in an apartment is set to 75°F while the owner is awake and to 60°F while the owner is sleeping. The function W gives the temperature $W(x)$, in degrees Fahrenheit, in the apartment x hours after midnight. When it is hot outside, the owner changes the settings to be exactly 10 degrees warmer than W to save energy. The function H gives the temperature $H(x)$, in degrees Fahrenheit, x hours after midnight when it is hot outside.

   a. If $W(6.5) = 75$, then what is the corresponding point on H? Use function notation to describe the point on H.

   b. If $W(2) = 60$, then what is the corresponding point on H? Use function notation to describe the point on H.

   c. Write an expression for H in terms of W.

(From Unit 5, Lesson 2.)

6. A ball is hit in the air. Its height h, in feet, t seconds after it is hit is modeled by the equation $h = 4 + 50t - 32t^2$. Which equation models the height of a ball following the same path but is hit 2 seconds *after* the first ball?

   A. $h = 6 + 50t - 32t^2$

   B. $h = 2 + 50t - 32t^2$

   C. $h = 4 + 50(t + 2) - 32(t + 2)^2$

   D. $h = 4 + 50(t - 2) - 32(t - 2)^2$

(From Unit 5, Lesson 3.)