

**5.5** Notetaking with Vocabulary (continued)**Extra Practice**

In Exercises 1–4, find  $(f + g)(x)$  and  $(f - g)(x)$  and state the domain of each. Then evaluate  $f + g$  and  $f - g$  for the given value of  $x$ .

1.  $f(x) = -\frac{1}{2}\sqrt[3]{x}$ ,  $g(x) = \frac{9}{2}\sqrt[3]{x}$ ;  $x = -1000$

2.  $f(x) = -x^2 - 3x + 8$ ,  $g(x) = 6x - 3x^2$ ;  $x = -1$

3.  $f(x) = 4x^3 + 12$ ,  $g(x) = 2x^2 - 3x^3 + 9$ ;  $x = 2$

4.  $f(x) = 5\sqrt[4]{x} + 1$ ,  $g(x) = -3\sqrt[4]{x} - 2$ ;  $x = 1$

In Exercises 5–8, find  $(fg)(x)$  and  $\left(\frac{f}{g}\right)(x)$  and state the domain of each. Then evaluate  $fg$  and  $\frac{f}{g}$  for the given value of  $x$ .

5.  $f(x) = -x^3$ ,  $g(x) = 2\sqrt[3]{x}$ ;  $x = -64$

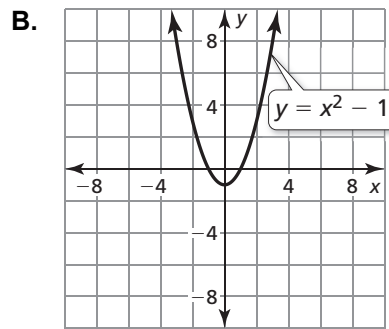
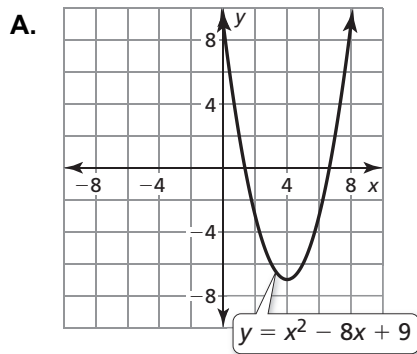
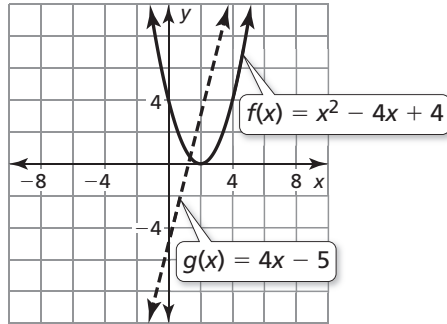
6.  $f(x) = 12x$ ,  $g(x) = 11x^{1/2}$ ;  $x = 4$

7.  $f(x) = 0.25x^{1/3}$ ,  $g(x) = -4x^{3/2}$ ;  $x = 1$

8.  $f(x) = 36x^{7/4}$ ,  $g(x) = 4x^{1/2}$ ;  $x = 16$

**5.5 Notetaking with Vocabulary (continued)**

9. The graphs of the functions  $f(x) = x^2 - 4x + 4$  and  $g(x) = 4x - 5$  are shown. Which graph represents the function  $f + g$ ? the function  $f - g$ ? Explain your reasoning.



10. The variable  $x$  represents the number of pages of a textbook to be printed. The cost  $C$  to print the textbook can be modeled by the equation  $C(x) = 0.2x^2 + 10$ . The selling price  $P$  of the textbook can be modeled by the equation  $P(x) = 0.05x^2 + 20$ .

- a. Find  $(P - C)(x)$ .
  
- b. Explain what  $(P - C)(x)$  represents.