

**Page 411: Chapter 8 Review Exercises**

21. Find the indicated values of  $f$ .

$$f(-3), f(-1), f(2)$$

$$f(x) = \begin{cases} -2 & \text{if } -3 \leq x < -1 \\ 4 & \text{if } -1 < x \leq 2 \end{cases}$$

22. Find the indicated values of  $f$ .

$$f(-1), f(0), f(1), f(2), f(3)$$

$$f(x) = \begin{cases} \frac{2}{3}x + 4 & \text{if } x < 0 \\ -\frac{1}{2}x + 3 & \text{if } 0 \leq x \leq 2 \\ -\frac{1}{2}x & \text{if } x > 2 \end{cases}$$

**Page 414: Chapter 8 Test**

31. Let

$$f(x) = \begin{cases} -x - 5 & \text{for } -4 \leq x < 0 \\ 0.2x^2 & \text{for } 0 \leq x \leq 5 \end{cases}$$

Find  $f(-4)$ ,  $f(-2)$ ,  $f(0)$ ,  $f(2)$ , and  $f(5)$ .

**Page A-23: Solutions for Section 8.1**

95. 3,  $[-6, \infty)$

97.  $\sqrt{7}$ ,  $[\frac{2}{3}, \infty)$

99. No  $f(3)$ ,  $(-\infty, 2]$

**Page A-23: Solutions for Section 8.2**

1.  $f(-1) = 0, f(0) = 1, f(1) = 0$
3.  $f(-3) = -2, f(-1)$  is not defined,  $f(2) = 4$
5.  $f(-2) = 0, f(-1)$  is not defined,  $f(0) = -2$
7.  $f(-3) = 0, f(-2) = -2, f(0) = -2, f(3) = -2, f(4) = 4$
9.  $f(-3) = -\frac{3}{2}, f(-2) = 1, f(0) = 1, f(3) = 1, f(4) = \frac{5}{2}$
11.  $f(-1) = \frac{10}{3}, f(0)$  is not defined,  $f(1) = \frac{5}{2}, f(2)$  is not defined,  $f(3) = -\frac{3}{2}$

**Page A-23: Solutions for Section 8.3**

1. A rational expression is a ratio of two polynomials with the denominator not equal to zero.
3.  $(-\infty, 1) \cup (1, \infty)$
5.  $(-\infty, 0) \cup (0, \infty)$
7.  $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$
9.  $(-\infty, -3) \cup (-3, -2) \cup (-2, \infty)$
11.  $(-\infty, \infty)$
13.  $(-\infty, -3) \cup (-3, 0) \cup (0, 2) \cup (2, \infty)$
15.  $\frac{4}{7}$
17.  $\frac{1}{10}$
19. Undefined

Page A-26: Solutions for Chapter 8 Review Exercises

1. No                      3. Yes                      5. Yes                      7. No

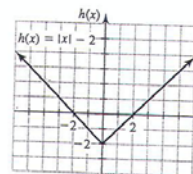
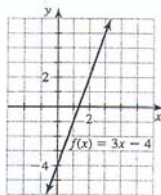
9.  $\{3, 4, 5\}, \{1, 5, 9\}$                       11.  $(-\infty, \infty), (-\infty, \infty)$

13.  $[-5, \infty), [0, \infty)$                       15. -5                      17. -6

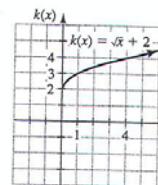
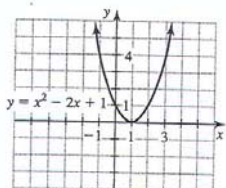
19.  $-\frac{21}{4}$                       21.  $f(-3) = -2, f(-1)$  is not defined,  $f(2) = 4$

23.  $(-\infty, 1) \cup (1, \infty)$                       25.  $(-\infty, -1) \cup (-1, 2) \cup (2, \infty)$

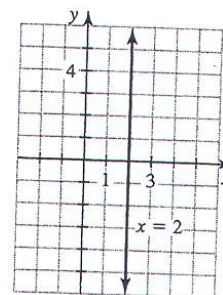
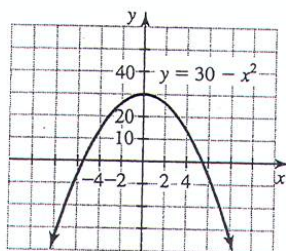
27.  $(-\infty, \infty), (-\infty, \infty)$                       29.  $(-\infty, \infty), [-2, \infty)$



31.  $(-\infty, \infty), [0, \infty)$                       33.  $[0, \infty), [2, \infty)$

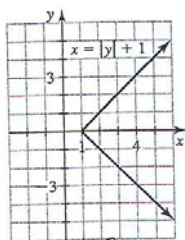


35.  $(-\infty, \infty), (-\infty, 30]$                       37.  $\{2\}, (-\infty, \infty)$



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39.  $[1, \infty), (-\infty, \infty)$



41. -4

43.  $\sqrt{2}$

45. 99

47. 17

49.  $3x^3 - x^2 - 10x$

51. 20

53.  $F = f \circ g$

55.  $H = g \circ h$

57.  $I = g \circ g$

59. No

61. Yes,  $f^{-1}(x) = \frac{x}{8}$

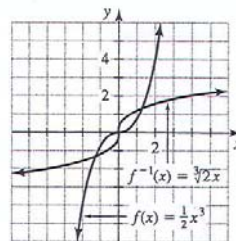
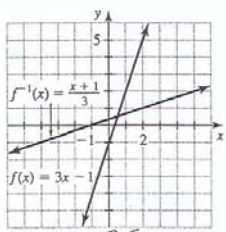
63. Yes,  $g^{-1}(x) = \frac{x+6}{13}$

65. Yes,  $j^{-1}(x) = \frac{x+1}{x-1}$

67. No

69.  $f^{-1}(x) = \frac{x+1}{3}$

71.  $f^{-1}(x) = \sqrt[3]{2x}$



73. 256 ft

75.  $B = \frac{2A}{\pi}$

77.  $a = 15w - 16$

79.  $A = s^2, s = \sqrt{A}$