

Taken from § 6.2 in the text.

In exercises 9 - 19, simplify the given expression.

9.  $\frac{1}{2} \cdot \frac{4}{5}$

11.  $\frac{7}{8} \cdot \frac{4}{3} \cdot (-3)$

13.  $\frac{3}{8} \cdot 2$

15.  $-\frac{7}{11} \div 14$

17.  $\frac{5}{7} \div \frac{15}{14}$

19.  $6 \div \left(-\frac{1}{3}\right)$

In exercises 21 - 49 odd and 59 - 101 odd, simplify the rational expression.

21.  $\frac{5x}{x^2}$

23.  $\frac{3z+6}{z+2}$

25.  $\frac{2z+2}{3z+3}$

27.  $\frac{(x-1)(x+1)}{x-1}$

29.  $\frac{x^2-4}{x+2}$

31.  $\frac{x(x-1)}{(x+1)(x-1)}$

$$33. \frac{(3x+1)(x+2)}{(x+2)(5x-2)}$$

$$35. \frac{x+5}{x^2+2x-15}$$

$$37. \frac{x^2+2x}{x^2+3x+2}$$

$$39. \frac{6x^2+7x-5}{2x^2-11x+5}$$

$$41. \frac{a^2-b^2}{a-b}$$

$$43. \frac{m^3+n^3}{m+n}$$

$$45. -\frac{4-t}{t-4}$$

$$47. \frac{4m-n}{-4m+n}$$

$$49. \frac{5-y}{y-5}$$

$$59. \frac{2}{x} \cdot \frac{x-1}{3x}$$

$$61. \frac{x-2}{x} \cdot \frac{x-3}{x+4}$$

$$63. \frac{1}{2x} \cdot \frac{4x}{2}$$

$$65. \frac{5a}{4} \cdot \frac{12}{5a}$$

$$67. \frac{9x^2y^4}{8xy^6} \cdot \frac{(2xy^2)^3}{3(xy)^4}$$

$$69. \frac{x+1}{2x-5} \cdot \frac{2x-5}{x}$$

$$71. \frac{b^2+1}{b^2-1} \cdot \frac{b-1}{b+1}$$

$$73. \frac{x^2-2x-35}{2x^3-3x^2} \cdot \frac{x^3-x^2}{2x-14}$$

$$75. \frac{3n-9}{n^2-9} \cdot (n^3 + 27)$$

$$77. \frac{3n-9}{n^2-9} \cdot \frac{n^3+27}{12}$$

$$79. \frac{x}{y} \cdot \frac{2y}{x} \cdot 2xy$$

$$81. \frac{x-1}{y} \cdot \frac{y(x+y)}{2} \cdot \frac{y}{x+y}$$

$$83. \frac{3x}{2} \div \frac{2x}{5}$$

$$85. \frac{8a^4}{3b} \div \frac{a^5}{9b^2}$$

$$87. (2n + 4) \div \frac{n+2}{n-1}$$

$$89. \frac{6b}{b+2} \div \frac{3b^4}{2b+4}$$

$$91. \frac{3a+1}{a^7} \div \frac{a+1}{3a^8}$$

$$93. \frac{x+5}{x-x^3} \div \frac{25-x^2}{x^3}$$

$$95. \frac{x^2-3x+2}{x^2+5x+6} \div \frac{x^2+x-2}{x^2+2x-3}$$

$$97. \frac{x^2-4}{x^2+x-2} \div \frac{x-2}{x-1}$$

$$99. \frac{3y}{x^2} \div \frac{y^2}{x} \div \frac{y}{5x}$$

$$101. \frac{x-3}{x-1} \div \frac{x^2}{x-1} \div \frac{x-3}{x}$$

107. The area  $A$  of a rectangle is  $5x^2 + 12x + 4$  and its width  $W$  is  $x + 2$ , as shown in the figure in the text.

a. Find the length  $L$  of the rectangle.

b. Find the length if the width is 8 feet.

109. The volume  $V$  of a box with a square bottom is  $4x^3 + 4x^2 + x$ .

a. If its height is  $x$ , find the area of the bottom.

b. Find the dimensions of the box when  $x = 10$