

56. $\frac{4}{a^2 - 4} + \frac{2}{a^2 + 3a + 2} + \frac{4}{a^2 - a - 2}$

57. $\frac{a + 2}{a^2 - 6a + 8} + \frac{3a - 8}{a^2 - 5a + 6} + \frac{2a - 5}{a^2 - 7a + 12}$

58. $\frac{2z + 5}{z^2 + 5z + 4} + \frac{z + 13}{z^2 - z - 20} + \frac{z + 7}{z^2 - 4z - 5}$

■ See Example 7.

59. $x - \frac{1}{x}$

61. $x + \frac{1}{x - 1} - \frac{1}{(x - 1)^2}$

63. $y - \frac{y^2}{y - 1} + \frac{y^2}{y + 1}$

65. $x - 1 + \frac{3}{x + 2}$

60. $1 + \frac{1}{y}$

62. $y - \frac{2}{y^2 - 1} + \frac{3}{y + 1}$

64. $x + \frac{2x^2}{x + 2} - \frac{3x^2}{x - 1}$

66. $x + 3 + \frac{1}{x - 1}$

■ Write each expression as a single fraction in lowest terms. See Example 8.

67. $\left(\frac{5}{x + 5} - \frac{4}{x + 4}\right) \cdot \frac{x + 4}{x}$

69. $\left(\frac{5}{x^2 - 9} + 1\right) \div \frac{x + 2}{x - 3}$

68. $\left(\frac{x}{x^2 + 1} - \frac{1}{x + 1}\right) \cdot \frac{x + 1}{x - 1}$

70. $\left(\frac{x}{x + 1} + \frac{1}{x - 1}\right) \div \frac{x^2 + 1}{x + 1}$

2.4

COMPLEX FRACTIONS

A fraction that contains one or more fractions in either its numerator or its denominator or both is called a **complex fraction**. For example,

$$\frac{\frac{2}{3}}{\frac{5}{6}} \quad \text{and} \quad \frac{x + \frac{3}{4}}{x - \frac{1}{2}}$$

are complex fractions. Like simple fractions, complex fractions represent quotients. For example,

$$\frac{\frac{2}{3}}{\frac{5}{6}} = \frac{2}{3} \div \frac{5}{6} \tag{1}$$