33. $\dfrac{a+3-\dfrac{8}{a+1}}{\dfrac{-6}{a+1}+a+2}$

34. $\dfrac{c+1-\dfrac{10}{c-2}}{\dfrac{-2}{c-2}+c-3}$

35. $\dfrac{\dfrac{1}{u+2}-\dfrac{2}{u-1}}{\dfrac{2}{u+1}-\dfrac{1}{u+2}}$

36. $\dfrac{\dfrac{3}{v-2}-\dfrac{1}{v+2}}{\dfrac{1}{v-2}-\dfrac{3}{v-3}}$

37. $\dfrac{w-1-\dfrac{1}{w-1}}{w+1-\dfrac{1}{w-1}}$

38. $\dfrac{\dfrac{1}{z-1}-\dfrac{z}{z+1}}{1-\dfrac{z}{z+1}}$

39. $\dfrac{\dfrac{x}{x-y}-\dfrac{y}{x+y}}{\dfrac{y}{x-y}+\dfrac{x}{x+y}}$

40. $\dfrac{\dfrac{x}{x-y}-\dfrac{y}{x+y}}{x^2-y^2}$

■ *Write each quotient first as a complex fraction and then as a simple fraction in lowest terms. See Example* 4.

41. $\left(\dfrac{1}{y^2}-\dfrac{1}{4}\right)\div\left(\dfrac{1}{y}+\dfrac{1}{2}\right)$

42. $\left(\dfrac{4}{x}-\dfrac{1}{3}\right)\div\left(\dfrac{16}{x^2}-\dfrac{1}{9}\right)$

43. $\left(\dfrac{9}{a^2}-1\right)\div\left(\dfrac{3}{a}+1\right)$

44. $\left(1+\dfrac{1}{b^3}\right)\div\left(1+\dfrac{1}{b}\right)$

45. $\left(x+3+\dfrac{10}{2x-3}\right)\div\left(x-\dfrac{2}{2x-3}\right)$

46. $\left(y-1-\dfrac{4}{3y-2}\right)\div\left(y-\dfrac{1}{3y-2}\right)$

■ *Solve.*

47. The focal length of a lens is given by the formula

$$\frac{1}{f}=\frac{1}{p}+\frac{1}{q},$$

where f stands for the focal length, p is the distance from the object viewed to the lens, and q is the distance from the image to the lens. Suppose you estimate that the distance from a certain object to your camera lens is 60 inches greater than the distance from the lens to the mirror, where the image forms.

a. Write an expression for $1/f$ in terms of q.

b. Write an expression for f in terms of q.

48. If two resistors R_1 and R_2 in an electrical circuit are connected in parallel, the total resistance R in the circuit is given by

$$\frac{1}{R}=\frac{1}{R_1}+\frac{1}{R_2}.$$

a. Assume that the second resistor, R_2, is 10 ohms greater than the first. Write an expression for $1/R$ in terms of the first resistor.

b. Write an expression for R in terms of the first resistor.

49. Andy drives 300 miles to Lake Tahoe at 70 miles per hour and returns home at 50 miles per hour. What is his average speed for the round trip? (It is not 60 miles per hour!)

a. Write expressions for the time it takes for each leg of the trip if Andy drives a distance d at speed r_1 and returns at speed r_2.