

Chapter 6 Rational Expressions

108. $\frac{3}{10} = \frac{5}{x}$

109. $\frac{1}{-3} = \frac{-2}{x}$

110. $\frac{x^2-4}{x} \div \frac{4x-8}{x}$

111. $\frac{ax+am+3x+3m}{a^2-9} \div \frac{2x+2m}{a-3}$

112. $\frac{-2}{x} = \frac{3}{x+2}$

113. $\frac{2}{x^2-25} + \frac{1}{x^2-4x-5}$

114. $\frac{4}{a^2-1} + \frac{1}{2a+2}$

115. $\frac{-3}{a^2-9} - \frac{2}{a^2+5a+6}$

116. $\frac{-5}{a^2-4} - \frac{2}{a^2-3a+2}$

117. $\frac{1}{a^2-1} + \frac{2}{1-a} = \frac{3}{a+1}$

118. $3 + \frac{1}{x-2} = \frac{2x-3}{x-2}$

Chapter 6 Test

What numbers cannot be used for x in each rational expression?

1. $\frac{2x-1}{x^2-1}$

2. $\frac{5}{2-3x}$

3. $\frac{1}{x}$

Perform the indicated operation. Write each answer in lowest terms.

4. $\frac{2}{15} - \frac{4}{9}$

5. $\frac{1}{y} + 3$

6. $\frac{3}{a-2} - \frac{1}{2-a}$

7. $\frac{2}{x^2-4} - \frac{3}{x^2+x-2}$

8. $\frac{m^2-1}{(m-1)^2} \cdot \frac{2m-2}{3m+3}$

9. $\frac{a-b}{3} \div \frac{b^2-a^2}{6}$

10. $\frac{5a^2b}{12a} \cdot \frac{2a^3b}{15ab^6}$

Simplify each complex fraction.

11. $\frac{\frac{2}{3} + \frac{4}{5}}{\frac{2}{5} - \frac{3}{2}}$

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

Solve each equation.

13. $\frac{3}{x} = \frac{7}{5}$

14. $\frac{x}{x-1} - \frac{3}{x} = \frac{1}{2}$

15. $\frac{1}{x} + \frac{1}{6} = \frac{1}{4}$

Solve each formula for the indicated variable.

16. $\frac{y-3}{x+2} = \frac{-1}{5}$ for y

17. $M = \frac{1}{3}b(c+d)$ for c

Solve each problem.

18. If $R(x) = \frac{x+2}{1-x}$, then what is $R(0.9)$?

19. When all of the grocery carts escape from the supermarket, it takes Reginald 12 minutes to round them up and bring them back. Because Norman doesn't make as much of an hour as Reginald, it takes Norman 18 minutes to do the same job. How long would it take them working together to complete the roundup?

20. Brenda and her husband Randy bicycled cross country together. One morning, Brenda rode 30 miles. By the next day, she rode only 5 miles per hour faster and putting in only 1 hour. Randy covered twice the distance Brenda covered. What was the speed of each cyclist?

21. For a certain time period the ratio of the dollar value of exports to the dollar value of imports for the United States was 2 to 3. If the value of exports during that time period was 48 billion dollars, then what was the value of imports?