

LESSON

8-3

Practice B***Adding and Subtracting Rational Expressions*****Find the least common multiple for each pair.**

1. $3x^2y^6$ and $5x^3y^2$

2. $x^2 + x - 2$ and $x^2 - x - 6$

Add or subtract. Identify any x -values for which the expression is undefined.

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

4. $\frac{x+12}{2x-5} - \frac{3x-2}{2x-5}$

5. $\frac{x+4}{x^2-x-12} + \frac{2x}{x-4}$

6. $\frac{3x^2-1}{x^2-3x-18} - \frac{x+2}{x-6}$

7. $\frac{x+2}{x^2-2x-15} + \frac{x}{x+3}$

8. $\frac{x+6}{x^2-7x-18} - \frac{2x}{x-9}$

Simplify. Assume all expressions are defined.

9. $\frac{\frac{x-1}{x+5}}{\frac{x+6}{x-3}}$

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

Solve.

11. A messenger is required to deliver 10 packages per day. Each day, the messenger works only for as long as it takes to deliver the daily quota of 10 packages. On average, the messenger is able to deliver 2 packages per hour on Saturday and 4 packages per hour on Sunday. What is the messenger's average delivery rate on the weekend?

c. $\frac{T_3}{T_1} = 1.143$

4. D

5. A

11. 1

12. $\frac{5x}{x^2 + 4x + 3}$

13. 54.5 miles per hour

Reading Strategies

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

b. $x = 2$

c. Because $x = 2$ makes the denominator of the expression equal to 0

2. a. $\frac{6x^3y^2}{7z^4} \cdot \frac{21z^2}{2xy^2}$

b. $\frac{3x^2}{z^2} \cdot \frac{3}{1}$

c. $\frac{9x^2}{z^2}$

d. $z = 0$

3. a. $\frac{3(x-1)}{2(x+2)} \cdot \frac{4(x+2)}{9(x-1)}$

b. $\frac{1}{1} \cdot \frac{2}{3}$

c. $\frac{2}{3}$

d. The resulting expression is never undefined.

4. By multiplying the result by the divisor; if it is correct their product should be the dividend.

LESSON 8-3

Practice A

1. $\frac{3x}{x+1}; x \neq -1$

2. $\frac{-2x+1}{2x-5}; x \neq \frac{5}{2}$

3. $12x^2$

4. $(x+1)(x+2)$

5. $\frac{6x+8}{x-4}$

6. $\frac{-2x^2+6x+12}{x^2+2x}$

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

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

9. $\frac{x^2}{6}$

10. $\frac{2}{x^2+5x}$

Practice B

1. $15x^3y^6$

2. $(x-1)(x+2)(x-3)$

3. $\frac{6x-8}{x+4}; x \neq -4$

4. $\frac{-2x+14}{2x-5}; x \neq \frac{5}{2}$

5. $\frac{2x^2+7x+4}{x^2-x-12}; x \neq 4, x \neq -3$

6. $\frac{2x^2-5x-7}{x^2-3x-18}; x \neq 6, x \neq -3$

7. $\frac{x^2-4x+2}{x^2-2x-15}; x \neq -3, x \neq 5$

8. $\frac{-2x^2-3x+6}{x^2-7x-18}; x \neq -2, x \neq 9$

9. $\frac{x^2-4x+3}{x^2+11x+30}$

10. $\frac{12x-24}{x^3+3x^2+x+3}$

11. $2.6\bar{6}$ packages per hour

Practice C

1. $\frac{13x-2}{2x+6}; x \neq -3$

2. $\frac{x^2+28x}{3x^2(x+4)}; x \neq -4, x \neq 0$

3. $\frac{4x^2-2x-4}{3x^2-11x-4}; x \neq -\frac{1}{3}$ and $x \neq 4$

4. $\frac{3x-7}{x^2-7x+10}; x \neq 5, x \neq 2$

5. $\frac{8x^2+4x-3}{8x^2-2}; x \neq \pm \frac{1}{2}$

6. $\frac{3x^2-20x-10}{x^3-6x^2-x+30}; x \neq -2, x \neq 3, x \neq 5$

7. $\frac{x-2}{x^2-8}$

8. $\frac{5}{11x+22}$

9. $\frac{x^2-x-42}{x^2-3x-10}$