

LESSON

9-1

Adding and Subtracting Rational Expressions**Practice and Problem Solving: A/B**

Identify the excluded values for each expression.

1. $\frac{x-7}{9x^2-63x}$

2. $\frac{x^2+3x-18}{-x^2+6x-9}$

Simplify the given expression stating any excluded values.

3. $\frac{2x^2-12x+16}{7x^2-28x}$

4. $\frac{5x^2+6x-8}{6x^2-24}$

5. $\frac{9x^3+9x^2}{7x^2-2x-9}$

6. $\frac{2x^2+13x-24}{7x+56}$

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

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

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

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

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

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

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

Solve.

13. 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?

MODULE 8 Challenge

1. Sample answer: $y = \frac{1}{x^3 + x^2 - 6x}$
2. Sample answer: $y = \frac{3x^2}{2x^2 + x - 1}$
3. horizontal; $y = 2$
4. oblique; $y = x + 5$
5. oblique; $y = 5x + 18$
6. oblique; $y = x - 2$

MODULE 9 Rational Expressions and Equations

LESSON 9-1

Practice and Problem Solving: A/B

1. $x \neq 0, x \neq 7$
2. $x \neq 3$
3. $\frac{2(x-2)}{7x}$; $x \neq 0, 4$
4. $\frac{5x-4}{6(x-2)}$; $x \neq 2, -2$
5. $\frac{9x^2}{7x-9}$; $x \neq \frac{9}{7}, -1$
6. $\frac{2x-3}{7}$; $x \neq 8$
7. $\frac{6x-8}{x+4}$; $x \neq -4$
8. $\frac{-2x+14}{2x-5}$; $x \neq \frac{5}{2}$
9. $\frac{2x^2+7x+4}{x^2-x-12}$; $x \neq 4, x \neq -3$
10. $\frac{2x^2-5x-7}{x^2-3x-18}$; $x \neq 6, x \neq -3$
11. $\frac{x^2-5x+2}{x^2-2x-15}$; $x \neq -3, x \neq 5$
12. $\frac{-2x^2-3x+6}{x^2-7x-18}$; $x \neq -2, x \neq 9$
13. $2.66\bar{6}$ packages per hour

Practice and Problem Solving: C

1. $x \neq 6, x \neq 2$
2. $x \neq 8, x \neq 2$
3. $\frac{7}{3(5x+9)}$; $x \neq -\frac{9}{5}, 3$
4. $\frac{3(x-2)(x+2)}{(x-1)(5x+6)}$; $x \neq -\frac{6}{5}, 1$
5. $\frac{7}{2}$, $x \neq 1$
6. $\frac{2x^2}{3(x+1)}$; $x \neq -1, -6$
7. $\frac{13x-2}{2x+6}$; $x \neq -3$
8. $\frac{x^2+28x}{3x^2(x+4)}$; $x \neq -4, x \neq 0$
9. $\frac{4x^2-2x-4}{3x^2-11x-4}$; $x \neq -\frac{1}{3}, x \neq 4$
10. $\frac{3x-7}{x^2-7x+10}$; $x \neq 5, x \neq 2$
11. $\frac{8x^2+4x-3}{8x^2-2}$; $x \neq \pm\frac{1}{2}$
12. $\frac{3x^2-20x-10}{x^3-6x^2-x+30}$; $x \neq -2, x \neq 3, x \neq 5$
13. $\frac{e(2x-3)}{x^2-3x-4}$

Practice and Problem Solving: Modified

1. $x \neq 0$
2. $x \neq 0, x \neq 3$
3. $\frac{1}{10x}$
4. $\frac{10}{7x+5}$; $x \neq -\frac{5}{7}, 0$
5. $\frac{7x-3}{5x+2}$
6. $\frac{6}{x+7}$; $x \neq -4, -7$