Name _____ Date _____ Class _____

LESSON 9-2

Multiplying and Dividing Rational Expressions

Practice and Problem Solving: A/B

Multiply. State any excluded values.

1. $\frac{6x}{10} \cdot \frac{6x}{3x^3}$

2. $\frac{4x}{3} \cdot \frac{8x}{2}$

3. $\frac{1}{x+9} \cdot \frac{7x^3+49x^2}{x+7}$

4. $\frac{6x^2-54x}{x-9} \cdot \frac{7x}{6x}$

5. $\frac{18x-36}{4x-8} \cdot \frac{2}{9x+18}$

6. $\left(56+11x-15x^2\right) \cdot \frac{10}{15x^2-11x-56}$

Divide. State any excluded values.

7. $\frac{4x}{5x} \div \frac{4x}{6}$

8. $\frac{6(x-2)}{(x-1)(x-10)} \div \frac{x-2}{x-10}$

9. $(2x+6) \div \frac{14x^2+42x}{10}$

10. $\frac{27x+9}{10} \div \frac{3x^2-8x-3}{10}$

11. $\frac{24x+56}{10x^3-90x^2} \div \frac{15x+35}{5}$

12. $\frac{2x+20}{12x^3-30x^2} \div \frac{2}{14x-35}$

Solve.

13. The distance, d, traveled by a car undergoing constant acceleration, a, for a time, t, is given by $d = v_0 t + \frac{1}{2}at^2$, where v_0 is the initial velocity of the car. Two cars are side by side with the same initial velocity. One car accelerates, $a = A$, and the other car does not accelerate, $a = 0$. Write an expression for the ratio of the distance traveled by the accelerating car to the distance traveled by the nonaccelerating car as a function of time.

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

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

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

10. $\frac{-2x^2+6x+12}{x^2+2x}$; $x \neq -2,\ x \neq 0$

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

12. $\frac{-x+2}{x^2-1}$; $x \neq -1,\ x \neq 1,$

13. 54.5 miles per hour

Reading Strategies

1. $6x^6$

2. $10x^4y^3$

3. $(x-8)(x+1)$

4. $(x-3)(x-2)$

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

6. $\frac{10x^2+15x}{4x^2-9}$

7. $\frac{x^2(x+3)}{(8-x)(x+3)}$

8. $\frac{(x+4)^2(x-4)}{(x+3)(x-4)(x+4)}$

Success for English Learners

1. I know an expression is undefined when the denominator equals 0.
2. Add or subtract the numerators, but leave the denominators the same.

LESSON 9-2

Practice and Problem Solving: A/B

1. $\frac{6}{5x}$; $x \neq 0$

2. $\frac{16x^2}{3}$; None

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

4. $7x;\ x \neq 0,\ 9$

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

6. $-10;\ x \neq -\frac{8}{5},\ \frac{7}{3}$

7. $\frac{6}{5x}$; $x \neq 0$

8. $\frac{6}{x-1}$; $x \neq 1,\ 2,\ 10$

9. $\frac{10}{7x}$; $x \neq -3,\ 0$

10. $\frac{9}{x-3}$; $x \neq -\frac{1}{3},\ 3$

11. $\frac{4}{5x^2(x-9)}$; $x \neq -\frac{7}{3},\ 0,\ 9$

12. $\frac{7(x+10)}{6x^2}$; $x \neq 0,\ \frac{5}{2}$

13. $1+\frac{At}{2v_0}$

Practice and Problem Solving: C

1. $\frac{324x^4}{209}$; $x \neq 0$

2. $\frac{82x^2}{105}$; $x \neq 0$

3. $\frac{x-11}{44x^3}$; $x \neq -\frac{12}{13},\ 0,\ \frac{4}{13}$

4. $\frac{x-13}{5x(x-10)}$; $x \neq -\frac{5}{3}, -\frac{3}{5},\ 0,\ 10$

5. $\frac{10}{3(x+5)}$; $x \neq -5, -2,\ 0,\ \frac{8}{5}$

6. $\frac{7(x-2)}{8}$; $x \neq -\frac{4}{5},\ 0$

7. $1;\ x \neq 0$

8. $\frac{14x^2}{x-6}$; $x \neq -13,\ 0,\ 6$

9. $\frac{84x^2}{x+12}$; $x \neq -\frac{10}{7}, -12$

10. $(x+6)(x+10)$; $x \neq -10,\ \frac{10}{11},\ 1$

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