Name:_____**Date:**_____ **Period:**_____

8-4 Rational Expressions

Standards

A2.A.APR.C.4 Rewrite rational expressions in different forms.

Objective

Students will rewrite and simplify rational expressions.

Key Concepts

_____ – the quotient of two polynomials.

_____ – the numerator and denominator of a rational expression have no

common factor

Examples

1. (I do) Write the expression in simplest form. State any restrictions on the variable.

   a. $\dfrac{24x^2 y}{-6x^2 y^3}$

   b. $\dfrac{12-4x}{x^2-9}$

   c. $\dfrac{x^2-6x-16}{x^2+5x+6}$

2. (I do) What is the product $\dfrac{x^2-25}{x^2+4x+3} \cdot \dfrac{x^2+x-6}{x-5}$ in simplest form? State any restrictions on the variable.

3. (We do) What is the quotient $\dfrac{x^2+5x+4}{x^2+x-12} \div \dfrac{x^2-1}{2x^2-6x}$ in simplest form? State any restrictions on the variable.

4. (They do) Your community is building a park. It wants to fence in a play space for toddlers. It wants the maximum area for a given amount of fencing. One measure of efficiency in fencing is the ratio of the area to the perimeter. The most efficient use of fencing will have the greatest ratio.

    a. Which shape, a square or circle, provides a more efficient use of fencing?

    b. Does this hold true for a perimeter of 40 feet?

You do: Practice 8-4: Complete your assignment on a separate sheet of paper. Show all work.

1. Simplify each rational expression. State any restrictions on the variable.

    a. $\dfrac{4x-12}{8x+24}$ b. $\dfrac{5x^2y}{15xy^2}$ c. $\dfrac{x^2+8x+16}{x^2-2x-24}$

2. Multiply or Divide. State any restrictions on the variable.

    a. $\dfrac{x^2+3x-10}{x^2+4x-12} \cdot \dfrac{3x+18}{x+3}$ b. $\dfrac{x^2-7x+10}{x^2-8x+15} \div \dfrac{4-x^2}{x^2+3x-18}$

3. Is the equation $y = \dfrac{x+1}{x^2+1}$ in simplest form? Explain how you can tell.

4. A student claims that $x = 2$ is the only solution of the equation $\dfrac{x}{x-2} = \dfrac{2}{x-2}$. Is the student correct? Explain.

5. Write a rational expression that simplifies to $\dfrac{x}{x+1}$.