**Grade 11 Review – Rational Expressions**

Warm-Up

Factor the following:

a) x2 – 4x – 32 b) 4x2 – 64 c) 3x2y + 6xy2

d) 6x2 + x – 2 e) 2x2 + 8x – 10 f) x2 – y2 – 6y – 9

Restrictions

Consider the following two equations:

Equation 1 Equation 2

Are these two equations equivalent? Explain.

How can the two equations be made to be equivalent?

When a restriction is embedded into an expression it is referred to as an \_\_\_\_\_\_\_\_\_ restriction. When the restriction is written outside the expression it is referred to as an \_\_\_\_\_\_\_ restriction.

Example 1

State all restrictions (implicit and explicit) for each expression below:

a)  b)  c) 

When simplifying an expression, it is critically important to state all implicit restrictions that are removed through the simplifying process.

Example 2

Simplify the following rational expressions.

a)  b) 

c)  d) 

e)  f)

Practice - Rational Expressions

1. Factor the following expressions:
2. x2 – x – 12 b) 9x2 - 4 c) 8xy2 – 4xy + 6x2y

d) 2x2 - 16x + 30 e) 4x2 + 20x + 24 f) 6x2 + 13x - 5

2. State all restrictions for the following expressions:

a) b) c)

3. Simplify the following rational expressions:

a) b) c)

d) e) f)

4. Simplify. State all restrictions on the variables.

Solutions

1a) (x - 4)(x + 3) b) (3x - 2)(3x + 2) c) 2xy(4y – 2 + 3x)

d) 2(x - 3)(x - 5) e) 4(x + 2)(x + 3) f) (3x - 1)(2x + 5)

2a) b) c)

3a) b) c)

d) e) f)

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