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NOTES: Section 11.4 – Multiplying and Dividing Rational Expressions

Goals: #1 - I can multiply and divide rational expressions.

Homework: Section 11.4 Worksheet

Exploration #1: Work with a partner and multiply the following fractions.

1. $\frac{3}{5} \cdot \frac{8}{15}$
2. $\frac{2}{3} \cdot \frac{4}{5}$
3. $\frac{3}{4} \cdot \frac{8}{9}$

Notes:

To _____ rational expressions:

1. We _____ the numerators and the denominators.
2. We _____ the numerators and _____ the denominators.
3. We _____ the expression.

Example #1: Multiply the rational expression.

1. $\frac{3x^3}{4x} \cdot \frac{8x}{15x^4}$
2. $\frac{7n^5}{5n^2} \cdot \frac{10n^3}{14n}$

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Example #2: Multiply the rational expression.

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

2. $\frac{y - 5}{3y^2 - 3y} \cdot \frac{2y^2}{y^2 - 6y + 5}$

You practice: Multiply the rational expression.

1. $\frac{y^3}{2y^2} \cdot \frac{4y^2}{6}$

2. $\frac{5x + 10}{x - 3} \cdot \frac{x^2 - 9}{5}$

Example #3: Multiply the rational expression.

1. $\frac{7x}{x^2 + 5x + 4} \cdot (x + 4)$

2. $(x - 3) \cdot \frac{x + 3}{x^2 - 9}$

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Exploration #2: Work with a partner and divide the following fractions.

1. $\frac{3}{10} \div \frac{1}{5}$
2. $\frac{4}{7} \div \frac{4}{5}$
3. $\frac{4}{5} \div \frac{1}{2}$

Notes:

To _____ rational expressions:

1. We _____ by the _____ of the second fraction.
2. We _____ the numerators and the denominators.
3. We _____ the numerators and _____ the denominators.
4. We _____ the expression.

Example #4: Divide the rational expression.

1. $\frac{4n}{n+5} \div \frac{n-9}{n+5}$
2. $\frac{3x}{2x-4} \div \frac{6x^2}{x-2}$

You practice: Divide the rational expression.

1. $\frac{n-2}{2n} \div \frac{n-2}{n+5}$
2. $\frac{x^2-9}{4x^2} \div (x-3)$