

Mr. B's Algebra Connections

Really Good At Rational Expressions!

Fall
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Fundamental Principal of Rational Expressions. If P, Q, and R are polynomials where Q and R \neq 0, then $(PR)/(QR) = P/Q$.

Multiplying Rational Expressions:

1. Factor numerator and denominator completely.
2. Cancel out common factors that appear in both numerator and denominator.
3. Multiply remaining factors in numerator, multiply remaining factors in denominator.

Dividing Rational Expressions. Rewrite the divisor as a reciprocal, then multiply.

Adding/Subtracting Rational Expressions with Common Denominator. Add polynomials in numerator. Write results on common denominator. *Don't "subtract" polynomials;* add the opposite. To subtract, change signs in second polynomial and add.

Adding/Subtracting Rational Expressions with Different Denominators

1. Find Least Common Denominator:

- a. Factor all denominators completely.
- b. The LCD is the product of unique factors raised to the highest power to which each appears in any one denominator.

2. Rewriting Rational Expression as Equivalent Expression with Common Denominator.

- a. Identify "missing" factors in denominator of each rational expression.
- b. Multiply the BOTH the numerator and denominator of each rational expression by the missing factors from that expression's denominator.
- c. This creates equivalent rational expressions with common denominators to add or subtract.