

Name: _____

Lesson 1.3 & 1.4: Algebraic Expressions & Rational Expressions

Polynomials

A **polynomial** is an expression of more than two algebraic _____.

Polynomials are defined both by the number of terms they have and the _____ of the terms being added.

Example:

| Expression | Type | Terms | Degree |
|-----------------|------|-------|--------|
| $2x^2 - 3x + 4$ | | | |
| $5x^{10} - 13x$ | | | |
| 6 | | | |

Factoring Polynomials

We factor polynomials in order to find their _____.

Factors can be used to find _____ of a polynomial. Another name for root is

_____.

Example:

$$3x^{\frac{3}{2}} - 9x^{\frac{1}{2}} + 6x^{-\frac{1}{2}}$$

Rational Expressions

The _____ is all possible x-values of a given function.

The _____ is all possible y-values of a given function.

Example: Find the domain and range.

$$f(x) = \frac{x}{x^2 - 5x + 6}$$

Multiplying and Dividing Rational Expressions

To multiply _____, we must use the following property of fractions:

$$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$$

To divide _____, we must use the following property of fractions:

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$$

Example:

$$\frac{x^2 + 2x - 3}{x^2 + 8x + 16} \cdot \frac{3x + 12}{x - 1}$$

Rationalizing Denominators

