

12.5: Multiply and Divide Rational Expressions:

Goals: *Multiply expressions involving monomials
*Multiply expressions involving polynomials
*Divide rational expressions

Multiply expressions involving monomials:

$$\text{Ex: } \frac{2x^2}{3x} \cdot \frac{6x^2}{12x^3}$$

$$\text{Ex: } \frac{2y^3}{5y} \cdot \frac{15y^3}{8y^5}$$

$$\text{Ex: } \frac{7z^2}{4z^3} \cdot \frac{z^3}{14z}$$

$$\text{Ex: } \frac{3x^2}{2x} \cdot \frac{8x^3}{15x}$$

Multiply Expressions Involving Polynomials:

$$\text{Ex: } \frac{3x^2 + 3x}{4x^2 - 24x + 36} \cdot \frac{x^2 - 4x + 3}{x^2 - x}$$

$$\text{Ex: } \frac{5x}{x^2 + 5x + 6} \cdot (x + 3)$$

$$\text{Ex: } \frac{x^2 + x - 2}{x^2 + 2x} \cdot \frac{2x^2 + 2x}{5x^2 - 15x + 10}$$

$$\text{Ex: } \frac{2w^2}{w^2 - 7w + 12} \cdot (w - 4)$$

$$\text{Ex: } \frac{3x+6}{3x^2+18x+27} \cdot \frac{x^2-x-12}{x^2-4}$$

$$\text{Ex: } \frac{4x^2}{x^2+3x-10} \cdot (x-2)$$

Divide Rational Expressions:

$$\text{Ex: } \frac{7x^2-7x}{x^2+2x-3} \div \frac{x+1}{x^2-7x-8}$$

$$\text{Ex: } \frac{x^2-9}{x^2+5x+6} \div \frac{4x^2-12x}{x^2-2x-8}$$

$$\text{Ex: } \frac{m^2-4}{2m^2+4m} \div \frac{6m-3m^2}{4m+44}$$

$$\text{Ex: } \frac{n^2-6n+9}{12n} \div (n-3)$$

$$\text{Ex: } \frac{2x^2+16x+24}{3x^2} \div (x+6)$$

$$\text{Ex: } \frac{3x^2+24x+36}{6x+9} \div (x+2)$$