

Rational Expressions

→ Fractions

→ variable in the denominator

$$\frac{9x^3y^2}{3x^2y^5}$$

Exponent Laws

$$x^2 \cdot x^3 = x^{2+3} = x^5$$

$$(x^2)^3 = x^{2 \cdot 3} = x^6$$

$$(2x^2)^3 = 2^3 \cdot (x^2)^3 = 8x^6$$

$$\left(\frac{x}{y}\right)^2 = \frac{x^2}{y^2}$$

$$\frac{x^3}{x^2} = \frac{\cancel{x} \cdot \cancel{x} \cdot x}{\cancel{x} \cdot \cancel{x}} = x$$

$$\frac{x^2}{x^3} = \frac{\cancel{x} \cdot \cancel{x}}{\cancel{x} \cdot \cancel{x} \cdot x} = \frac{1}{x}$$

$$\frac{\cancel{x}^4 \cancel{x}^4}{2y^{\cancel{6}^2} \cancel{x}^3} = \frac{x^4}{2y^6}$$

$$\frac{\cancel{3}c^{\cancel{4}}d^{\cancel{5}}}{2\cancel{d}^2 \cdot \cancel{2}6\cancel{c}^2} = \frac{\cancel{3}c^4d^5}{4 \cdot 2c^2d^2}$$

$$\frac{c^2d^3}{4} \qquad \frac{c^2d^3}{4}$$

$$\frac{4x}{3y^7} \left(\frac{y^4}{3x^2} \right)^3 \qquad \text{PEMDAS}$$

$$\frac{4x}{3y^7} \frac{y^{12}}{27x^6} = \frac{4\cancel{y}^{12}}{81x^{\cancel{6}}y^7}$$

$$\frac{4y^5}{81x^5}$$

$$\frac{4a^3b}{18ab^4} = \frac{2a^2}{9b^3}$$

$$\frac{(-2m^3n)^3}{(3mn^2)^2} = \frac{-8m^9n^3}{9m^2n^4} = \frac{-8m^7}{9n}$$

$$\frac{5k^2}{p^3} \cdot \left(\frac{p^2}{10k}\right)^2$$

$$\frac{5k^2}{p^3} \cdot \frac{p^4}{100k^2} = \frac{5k^2p^4}{100k^2p^3} = \left(\frac{p}{20}\right)$$