Steps to Divide a Polynomial by a Monomial

1. Write original problem.
2. Take each term in the numerator and put it in a separate fraction. The denominator of each fraction is the original denominator in the problem.
3. Fractions are connected by the signs that were used to connect the terms in the original numerator.
4. Simplify each fraction by simplifying coefficients; watch the signs. Use exponent rules to simplify the variables.

Examples

Simplify:

$$\frac{18x^4 + 24x^3 - 15x^2 - 6x}{3x} = \frac{18x^4}{3x} + \frac{24x^3}{3x} - \frac{15x^2}{3x} - \frac{6x}{3x}$$

$$= 6x^3 + 8x^2 - 5x - 2$$

Simplify:

$$\frac{3x^4 + 20x^3 - 25x^2}{-5x} = \frac{3x^4}{-5x} + \frac{20x^3}{-5x} - \frac{25x^2}{-5x}$$

$$= -\frac{3x^3}{5} - 4x^2 + 25x$$