

Simplify Completely

a)
$$\frac{x^2 - 2}{x^2 + 6x - 7} - \frac{19 - 4x}{x^2 + 6x - 7}$$

b)
$$\frac{4x - 16y}{x - 5y} + \frac{x - 6y}{5y - x}$$

c)
$$\frac{2}{x - 3} + \frac{7}{x + 2}$$

Chapter 6 section 4

Division of Polynomials

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Monomial \div Monomial

Two ways to see:

- $16x^3 \div 4x$

- $\frac{16x^3}{4x}$

Simplify

- Write as a fraction
- Divide the coefficients
- Simplify the powers
- No negative exponents

Example

- $16x^3 \div 4x$

Solution

- $\frac{16x^3}{4x}$

- $\frac{16}{4} \cdot \frac{x^3}{x}$

- $4x^2$

Try

$$1) \quad 36x^4y^3 \div 6x^3y^3$$

$$2) \quad \frac{18x^7}{-2x^4}$$

Polynomial \div Monomial

Two ways to see:

- $(28x^3 - 7x^2 - 16x) \div (4x^2)$

- $$\frac{28x^3 - 7x^2 - 16x}{4x^2}$$

Simplify

- Write as a fraction
- Divide each term of the polynomial by the monomial (make fractions)
- Simplify

Example

- $(28x^3 - 7x^2 - 16x) \div (4x^2)$

Solution:

- $$\frac{28x^3 - 7x^2 - 16x}{4x^2}$$

- $$\frac{28x^3}{4x^2} - \frac{7x^2}{4x^2} - \frac{16x}{4x^2}$$

- $$7x - \frac{7}{4} - \frac{4}{x}$$

Try

$$3) (36x^4y^3 - 18x^3y^3 - 12x^2y) \div (6x^3y^3)$$

$$4) \frac{25x^3 + 50x^2 - 40x - 10}{5x}$$

Summary

- Divide a polynomial by a monomial
- Rewrite as multiple fractions
- Simplify

