2.7: Common Factoring

Background:

Each term in a polynomial can be written as a product of coefficients and variables.

Examples

1. Write each term as products:

a) $27y + 54$

b) $25x^2 - 35x$

c) $180y^4 + 90y^3 + 45y^2$

d) $14x^3 + 21x^2 - 7x$

Common Factoring

Factoring polynomials is like doing the OPPOSITE of the distributive property.

When factoring a polynomial, follow these steps:

1) Find the greatest common factor of ALL the terms in the polynomial (include coefficients, variables and exponents).
2) Write the factor down.
3) In brackets, write each term of the polynomial with the factor DIVIDED out.

Examples

1. Factor the following completely:

a) $27y + 54$

b) $25x^2 - 35x$

c) $14x^3 + 21x^2 - 7x$

d) $x^3y - x^2y^2 + xy^3$

Dividing Polynomials

When dividing a polynomial by a monomial, EACH term of the polynomial must be divided by the monomial.

RECALL: $\frac{36+12}{3} = \frac{36}{3} + \frac{12}{3}$

Examples

1. Expand the following and then simplify by collecting like terms:

a) $\frac{25x^2 - 35x}{5}$

b) $\frac{18y + 54}{9}$

c) $\frac{14x^3 + 21x^2 - 7x}{7x}$

d) $\frac{12m^2n - 6mn + 2mn^2}{2mn}$

e) $\frac{50abc + 40ac - 20bc}{-10c}$

f) $\frac{35v^3w^2 - 21v^2w^3}{-7vw^2}$

Homework: p.263, 264#8, 9

p.272, 273#11, 13, A3 (#3 Challenge)