

Section P.4: Finding Polynomials

Key Topics: GCF, factoring formulas, irreducible polynomials

Finding the Greatest Common Monomial Factor

The term ax^n is the _____ (GCF) of a polynomial in x (with integer coefficients) if

1. a is the _____ that divides _____ of the polynomial coefficients.
2. n is the _____ on x found in _____ term of the polynomial.

Factoring Formulas

A and B represent any algebraic expression.

$$A^2 - B^2 = \underline{\hspace{2cm}} \quad \underline{\hspace{2cm}} \text{ of squares}$$

$$A^2 + 2AB + B^2 = \underline{\hspace{2cm}} \quad \text{Perfect square, } \underline{\hspace{2cm}} \text{ middle term}$$

$$A^2 - 2AB + B^2 = \underline{\hspace{2cm}} \quad \text{Perfect square, } \underline{\hspace{2cm}} \text{ middle term}$$

$$A^3 - B^3 = \underline{\hspace{2cm}} \quad \underline{\hspace{2cm}} \text{ of cubes}$$

$$A^3 + B^3 = \underline{\hspace{2cm}} \quad \underline{\hspace{2cm}} \text{ of cubes}$$

Some Irreducible Polynomials

If a and c are integers having _____ common factors, then

_____ is irreducible and _____ is irreducible.

Factoring Trinomials of the Form $Ax^2 + Bx + C$

To factor the trinomial $Ax^2 + Bx + C$ as $(ax + b)(cx + d)$, we use FOIL and combine like terms to get $Ax^2 + Bx + C = acx^2 + \underline{\hspace{2cm}} + bd$. Notice that $AC = acbd = \underline{\hspace{2cm}}$ and $B = \underline{\hspace{2cm}}$. We can factor $Ax^2 + Bx + C$ if we can find _____ factors of the _____ AC whose _____ is B .

