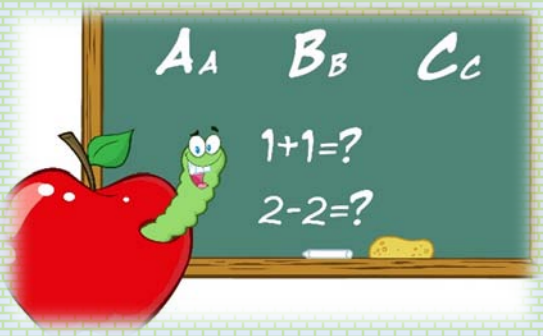

POLYNOMIAL MULTIPLICATION

A Polynomial is an expression which contains more than multiple algebraic terms i.e. the expression is the sum of several algebraic terms with different powers of variable(s).

Examples: 5x-8 $3x^2+4x-2$ 7x+4

Multiplication of Binomials

Example

Multiplying (3x-2) with (4x+5)

Distributive Property is used for multiplication of two binomials i.e. we have to find the product of first, outside, inside and last (FOIL) terms. And then we will add the terms.

$(3x-2)(4x+5) = 3x(4x+5)-2(4x+5)$ Using Distributive Property

$= 3x(4x)+3x(5)+(-2)(4x)+(-2)(5)$ Using FOIL rule

$= 12x^2+15x+(-8x)+(-10)$ Adding terms

$= 12x^2+(15x-8x)-10 = 12x^2+7x-10$ Combining and then adding or subtracting like

Multiplication of a Binomial with a Trinomial

Example

Multiplying (6x-3) with $(2x^2+5x+4)$

Distributive Property is used for multiplication of two a binomial with a trinomial.

$(6x-3)(2x^2+5x+4)$

$= 6x(2x^2+5x+4)-3(2x^2+5x+4)$ Using Distributive Property

$= 6x(2x^2)+6x(5x)+(6x)(4)+(-3)(2x^2)+(-3)(5x)+(-3)(4)$ Multiplying 6x and -3 with each term of trinomial

$= 12x^3+30x^2+24x+(-6x^2)+(-15x)+(-12)$ Adding terms

$= 12x^3+(30x^2-6x^2)+(24x-15x)-12 = 12x^3+24x^2-12$ Combining and then adding or subtracting like

Meets: Common Core Standard High School – HSA-APR.A.1