

"Standard Form": Exponents largest to smallest

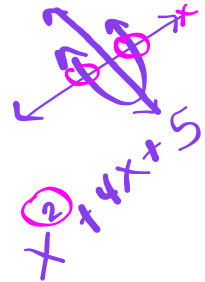
Algebra 2

Multiplying Polynomials Review

Refresher: Perform the indicated operation below.

1.)  $2x^3(x^3 + 3x^2 - 2x + 5) = \underline{2x^6 + 6x^5 - 4x^4 + 10x^3}$

2.)  $5b^3(4b^5 - 2b^3 + b - 11) = \underline{20b^8 - 10b^6 + 5b^4 - 55b^3}$



What property did you use for each?

Distributive Property

There are different ways to multiply polynomials...

Method 1 → The Distributive Property

Example:  $(x + 3)(x + 7)$

- ✓ Start with the first term in the first binomial. Multiply (distribute) this term times EACH of the terms in the second binomial.

$x^2 + 7x$

- ✓ Now, take the second term in the first binomial (take the sign also). Multiply this term times EACH of the terms in the second binomial.

$+3x + 21$

- ✓ Add the results:

$x^2 + 10x + 21$

Example 2:  $(2x - 3)(x + 4)$

$2x^2 + 8x - 3x - 12$

$2x^2 + 5x - 12$

Example 3:  $(x - 3)(6x - 2)$

$6x^2 - 20x + 6$

**Method 2** → The Tabular Method (the box method)

**Example 1:** Find the following product using the tabular method:  $(2x+6)(x-3)$

	$2x$	$+6$
$x$	$2x^2$	$+6x$
$-3$	$-6x$	$-18$

$2x^2 - 18$

**Example 2:** Find the following product using the tabular method:  $(3x^2 - x - 10)(4x + 1)$

	$3x^2$	$-x$	$-10$
$4x$	$12x^3$	$-4x^2$	$-40x$
$+1$	$+3x^2$	$-x$	$-10$

$12x^3 - x^2 - 41x - 10$

**You try!** ☺:

1.)  $(5x+2)(x+6)$

$5x^2 + 32x + 12$

2.)  $(4x^2 - 11x - 3)(2x + 3)$

$$8x^3 - 10x^2 - 39x - 9$$

\*3.) Challenge!  $(4x^2 + 8x + 3)(2x^2 - 5x + 7)$

$$8x^4 - 4x^3 - 6x^2 + 41x + 21$$