

11.3 EQ: How do you perform operations on polynomials?

**Box Method for Multiplying Polynomials**

- 1) Draw your box. The height of the box should be 1 more than the degree of the first polynomial. The length of the box should be 1 more than the degree of the second polynomial.
- 2) Write the polynomials you are multiplying on the outside edges of the box. Fill in missing terms if the degree skips.
- 3) Multiply in each box.
- 4) Like terms can be found on the diagonals of your box. Combine them!

Example 1: Simplify each expression. Write your answer in standard form.

a)  $(4x - 3)(2x + 7)$

b)  $(9x - 2)(x - 4)$

	$2x$	$+7$
$4x$	$8x^2$	$28x$
$-3$	$-6x$	$-21$

$8x^2 + 22x - 21$

$9x^2 - 38x + 8$

$$c) (3x - 1)(3x + 1)$$

$$d) (4x + 2)^2 = (4x + 2)(4x + 2)$$

$$9x^2 - 1$$

$$e) (x^3 + 3x - 5)(2x - 8)$$
$$(x^3 + 0x^2 + 3x - 5)(2x - 8)$$

$$16x^2 + 16x + 4$$

$$f) (10x - 1)(-2x^2 + x - 5)$$

	$-2x^2$	$1x$	$-5$
$10x$	$-20x^3$	$10x^2$	$-50x$
$-1$	$2x^2$	$-1x$	$5$

$$2x^4 - 8x^3 + 6x^2 - 34x + 40$$

$$-20x^3 + 12x^2 - 51x + 5$$

Summary:  
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