

Multiplying Polynomials

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Distributive Property:

$$\text{Ex: } a(b + c) = ab + ac \quad \text{or } a(b - c) = ab - ac$$

SO... each term inside the brackets is multiplied by the term on the outside of the brackets.

Ex. 1

Multiplying a Polynomial by a Constant

Determine the product:

$$\text{a) } 3(-2m + 4) \\ -6m + 12$$

$$\text{b) } 2(3m - 4) \\ 6m - 8$$

$$\text{c) } -2(-n^2 + 2n - 1) \\ 2n^2 - 4n + 2$$

$$3 \cdot -2m = -6m$$

$$3 \cdot 4 = +12$$

$$2 \cdot 3m = 6m$$

$$2 \cdot (-4) = -8$$

$$-2 \cdot -n^2 = 2n^2$$

$$-2 \cdot 2n = -4n$$

$$-2 \cdot -1 = +2$$

Ex. 2

Multiplying a Polynomial by a Monomial

Determine the product:

a) $2x(3x+4)$
 $6x^2 + 8x$

$2x \cdot 3x$ OR $2 \cdot 3 \cdot x \cdot x = 6x^2$

$2x \cdot 4 = 8x$

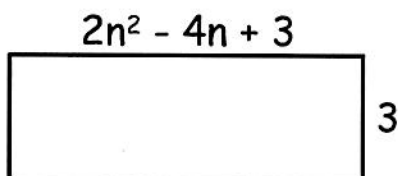
b) $-4x(-7x+5)$
 $28x^2 - 20x$

$-4x \cdot -7x$ OR $-4 \cdot -7 \cdot x \cdot x = 28x^2$

$-4x \cdot 5 = -20x$

Ex. 3

A rectangle has the following dimensions. Write the multiplication sentence for the area of the rectangle.



Area = base x height

$A = (2n^2 - 4n + 3)(3)$

OR

$(3)(2n^2 - 4n + 3)$

$6n^2 - 12n + 9$