

Multiplying Polynomials

Review:

a.) $4 \cdot 3 =$

b.) $4x \cdot 3x =$

c.) $4x^2 \cdot 3x =$

d.) $4x^2 \cdot 3x^2 =$

e.) $4x^7 \cdot 3x^4 =$

f.) $x(x + 3) =$

g.) $2x(3x + 1) =$

h.) $a(2x + y + z) =$

When multiplying over addition we must **distribute** whatever is in front.

Example 1:

$$a(x + y - z)$$
$$= \underline{\hspace{2cm}}$$

Example 2:

$$(x + 1)(x + y - z)$$
$$= x(x + 1) + y(x + 1) - z(x + 1)$$
$$= \underline{\hspace{2cm}}$$

Example 3:

Multiply:

a.) $(x + 2)(x - 3)$

Step 1: $x(x + 2) - 3(x + 2)$

Step 2: $x^2 + 2x - 3x - 6$

Step 3: $x^2 - x - 6$

b.) $(2x + 1)(3x + 1)$

Step 1:

Step 2:

Step 3:

c.) $(x - 4)(3x + 1)$

Step 1:

Step 2:

Step 3:

d.) $(2x + 1)(3x - 4)$

Step 1:

Step 2:

Step 3:

Example 4:

Multiply:

a.) $(x + 1)(x^2 + 2x + 3)$

Step 1: $x^2(x + 1) + 2x(x + 1) + 3(x + 1)$

Step 2: $x^3 + x^2 + 2x^2 + 2x + 3x + 3$

Step 3: $x^3 + 3x^2 + 5x + 3$

b.) $(x - 1)(x^2 + 3x + 4)$

Step 1:

Step 2:

Step 3:

c.) $(x - 2)(2x^2 - 3x - 5)$

Step 1:

Step 2:

Step 3:

d.) $(2x + 3)(4x^2 - 6x + 7)$

Step 1:

Step 2:

Step 3:

Multiply:

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

2. $(x - 3)(x + 3)$

3. $(x - 1)(5x - 2)$

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

5. $(2x - 1)(x^2 + 3x - 2)$