1st 5th/6th

LESSON 8-3 Multiplying Polynomials

Covering Two Targets Today!!

I can... multiply polynomials using the distributive & double distributive method.

I can... multiply polynomials using the FOIL method.

Double Distribute - Horizontal Method

Find the product of $(x + 2)(x - 3)$.

We are multiplying two items in first ( ) by the second

You have to write this step when using DD

$x(x-3) + 2(x-3)$ ← You distribute twice

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

Combine like terms!

$x^2 - x - 6$

Done!

Double Distribute - Horizontal Method

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

keep sign + or −

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

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

$6x^2 - 18x + 10x - 30$

$6x^2 - 8x - 30$

You Try – say yes to first 3 & then have them help check.

Double Distribute Horizontal

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

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

$2x^2 + 12x + x + 6$

① $2x^2 + 13x + 6$

2. $(c^5 + 2c^2)(c^3 - 4c)$

$c^5(c^3 - 4c) + 2c^2(c^3 - 4c)$

$c^8 - 4c^6 + 2c^5 - 8c^3$

② $c^8 - 4c^6 + 2c^5 - 8c^3$

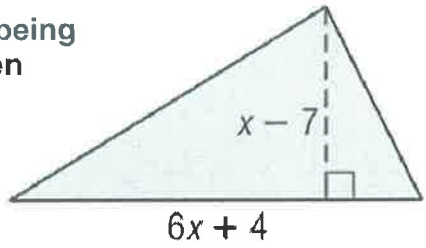
3. $(x^2 + 3x)(4x - 1)$

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

$4x^3 - x^2 + 12x^2 - 3x$

③ $4x^3 + 11x^2 - 3x$

A patio in the shape of the triangle shown is being built in Mari's backyard. The dimensions given are in feet. The area A of the triangle is one half the height h times the base b. Write an expression for the area of the patio.



Answer:

Double Distribute - Horizontal Method

$$(3a + 4)(a^2 - 12a + 1)$$

$$3a(a^2 - 12a + 1) + 4(a^2 - 12a + 1)$$

$3a^3 - 36a^2 + 3a + 4a^2 - 48a + 4$

$3a^3 - 32a^2 - 45a + 4$

You Try

$$(2x-1)(x^2-x+2)$$

check they keep neg w/ 1

$2x(x^2-x+2)-1(x^2-x+2)$

$2x^3-2x^2+4x-x^2+x-2$

$\boxed{2x^3-3x^2+5x-2}$

FOIL FIRST OUTER INNER LAST

$(z-6)(z-12)$ first

$z \cdot z$ is z^2

$(z-6)(z-12)$ outter

$z \cdot (-12)$ is $-12z$

$(z-6)(z-12)$ inner

$-6 \cdot z$ is $-6z$

$(z-6)(z-12)$ Last

$-6(-12)$ is 72

$z^2-12z-6z+72$

$z^2-18z+72$

FIRST **O**UTER **I**NNER **L**AST

$(5x - 4)(2x + 8)$

$5x(2x) + 5x(8) - 4(2x) - 4(8)$

$10x^2 + 40x - 8x - 32$

$10x^2 + 32x - 32$

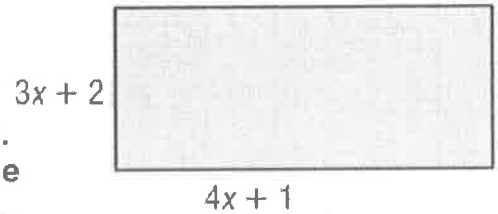
You Try!!

FOIL the following problems... No Box!!

1. $(3c + 1)(c - 2)$

$3c^2 - 6c + c - 2 = 3c^2 - 5c - 2$

2. The area of a rectangle is the measure of the base times the height. Write an expression for the area of the rectangle.



$(3x+2)(4x+1)$

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

$12x^2 + 24x + 2$

☆ You can Stop here & let do Hw. Dep on time!