10.2 Multiplying Polynomials

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4 Methods

Distributive Method

We are going to take each term of the 1st Poly. & Distr. or Multiply it by the entire 2nd polynomial

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

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

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

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

x^2-x-6

So... This is Really Like Distributing Twice

FOIL method (binomials only)

First

Outer

Inner

Last

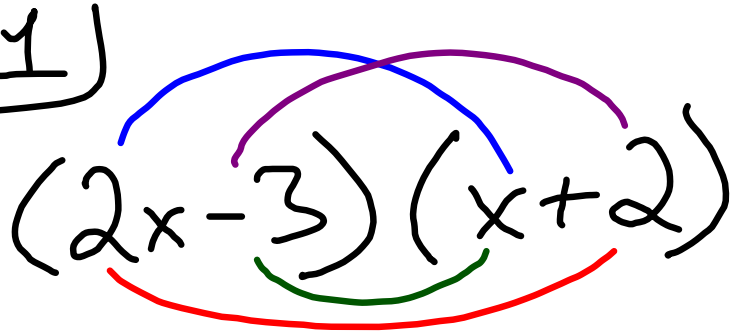
$(3x+4)(x+5)$

$3x(x)+3x(5)+4(x)+4(5)$

$3x^2+15x+4x+20$

$3x^2+19x+20$

ex1)



F.O.I.L.

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

$2x^2 + 4x - 3x - 6$

$2x^2 + 1x - 6$

Multiply Vertically

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

$$-x^2+3x+5$$
$$\times \quad x-2$$
$$+2x^2-6x-10$$
$$+-x^3+3x^2+5x$$
$$-x^3+5x^2-x-10$$

Multiply Poly. w/ 3 or More Terms

* Largest Poly. Goes on top.
** S.F.

$$123 \times 23$$
$$369$$
$$+2460$$
$$2829$$

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Multiply Horizontally

This is just Like the D.P.M. But w/ Larger then Binomials

$$(4x^2-3x-1)(2x-5)$$

$$4x^2(2x-5)-3x(2x-5)-1(2x-5)$$

$$8x^3-20x^2-6x^2+15x-2x+5$$

$$8x^3-26x^2+13x+5$$

For All Binomials...
Use FOIL ONLY!

O.T.L.

① Pg 578: 21-25(o);
28-34(e); 37, 39,
41-47(a); 48, 50, 52, 54