

← multiplying

# 3.6 (Part 1) - Expanding Binomials

Polynomial: multi-termed expression with whole number exponents.

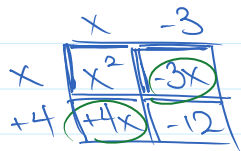
ex  $3x^2 - 2x + 17$  ← polynomial

$3x^{\frac{1}{2}} - 2x + 17$  ← not a polynomial

Recall:  $\left. \begin{matrix} (+)(+) = + \\ (-)(-) = + \\ (+)(-) = - \\ (-)(+) = - \end{matrix} \right\}$  like signs are positive  
 $\left. \begin{matrix} (+)(-) = - \\ (-)(+) = - \end{matrix} \right\}$  unlike signs are negative

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

a) method 1 - Area model



C.L.T.  
(collect like terms)

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

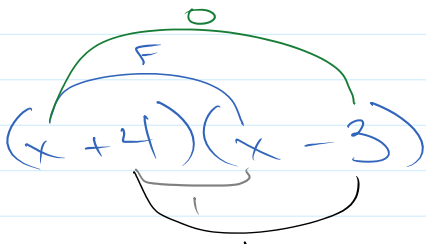
$x^2 + x - 12$

expanding →

So...  $(x+4)(x-3) = x^2 + x - 12$

b) method 2 - FOIL \* most common method \*

First Outside Inside Last



→ can also think of this method as "feed the chickens" with two farmers.

$x^2 - 3x + 4x - 12$  C.L.T.

$= x^2 + x - 12$

Try more examples...  
Expand...



ex  $(8-x) \rightarrow$  means  $\rightarrow (8-x)(8-x)$   
 $= 64 - 8x - 8x + x^2$  CLT

rearrange in decreasing x order  
\* watch to keep sign in front \*

$$= 64x^0 - 16x^1 + x^2$$
$$= x^2 - 16x + 64$$

So...  $(8-x)^2 = x^2 - 16x + 64$

Expand.

ex  $(2x-1)(3x-2)$   
 $= 6x^2 - 4x - 3x + 2$  CLT

$$= 6x^2 - 7x + 2$$

So...  $(2x-1)(3x-2) = 6x^2 - 7x + 2$

p 166 # 4, 5, 9, 12a-f, 13

a, d  
only.