

3.5 - Multiplying Binomials

Review:

$$\begin{array}{l}
 (+)(+) = + \\
 (-)(-) = + \\
 (+)(-) = - \\
 (-)(+) = -
 \end{array}$$

when multiply or divide

$$\begin{array}{|c|} \hline +x^2 \\ \hline \end{array}
 \begin{array}{|c|} \hline -x^2 \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline +x \\ \hline \end{array}
 \begin{array}{|c|} \hline -x \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline +1 \\ \hline \end{array}
 \begin{array}{|c|} \hline -1 \\ \hline \end{array}$$

Polynomial: one or more terms expression with all exponents being whole number

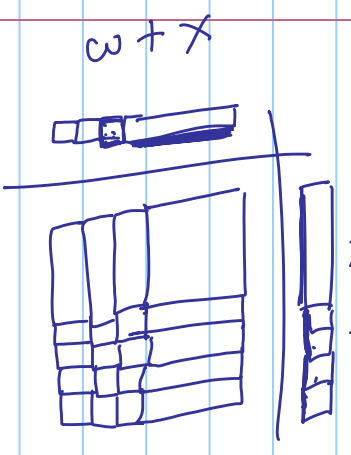
~~$$3x^2 - 2x + 17$$~~

term: # on #
variable
combination

terms separated
 3 terms = trinomial
 2 terms = binomial
 1 term = monomial
 $16x^4 - 4$
 $-3x^2y^2z^4$

Ex $(x+4)(x+3)$

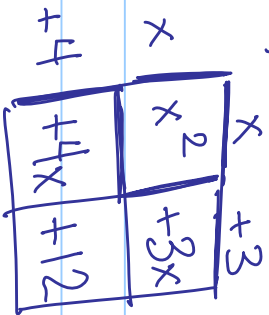
Method 1 - Tidy



$= x^2 + 7x + 12$



Method 2 - Area Model.



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

C.L.T

$$x^2 + 7x + 12$$

C.L.T = combine like terms.

Method 3 - FOIL

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

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

C.L.T

First
Outside
Inside
Last

$$x^2 + 7x + 12$$

C.L.T

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

Factor 1 Factor 2 chickens

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

C.L.T

$$= x^2 + 7x + 12$$

EX 2 Expand $(x+4)(x-3)$

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

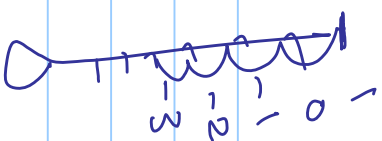
multiply

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

cut

$$= x^2 + 1x - 12$$

factor



EX 3 Expand $(8-x)^2 = (8-x)(8-x)$ or $(-x+8)(-x+8)$

$$8(8-x) - x(8-x)$$

$$64 - 8x - 8x + x^2$$

$$64 - 16x + x^2$$

$$x^2 - 16x + 64$$

* Rearrange into decreasing x order

HMSP 166
#4, 5, 9, 12a-f, 13
a, d