

## Alg I 8.3 notes.notebook

### 8.3 Multiplying Binomials

#### The **BIG** idea...

We will investigate 3 distinctive, yet similar, ways to multiply binomials.

#### The distributive method:

$$(a+b)(c+d) = a(c+d) + b(c+d)$$

Example:

$$\begin{aligned}(x+3)(2x-5) &= x(2x-5) + 3(2x-5) \\ &= 2x^2 - 5x + 6x - 15 \\ &= 2x^2 + x - 15\end{aligned}$$

#### Foil Method...

First Outer Inner Last

$$(a+b)(c+d) = ac + ad + bc + bd$$

Example:

$$\begin{aligned}(x+3)(2x-5) &= x(2x) + x(-5) + 3(2x) + 3(-5) \\ &= 2x^2 - 5x + 6x - 15 \\ &= 2x^2 + x - 15\end{aligned}$$

#### Table Method...

$$(a+b)(c+d)$$

	a	b
c	ac	bc
d	ad	bd

$$= ac + bc + ad + bd$$

Example:

$$(x+3)(2x-5) = \begin{array}{|c|c|c|} \hline & x & 3 \\ \hline 2x & 2x^2 & 6x \\ \hline -5 & -5x & -15 \\ \hline \end{array}$$

$$= 2x^2 + 6x - 5x - 15$$

$$= 2x^2 + x - 15$$

Simplify by using the distributive method.

1)  $(x+3)(x-8)$

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

Simplify by using the FOIL method.

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

4)  $(x-7)(x+7)$

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Simplify by using the table method.

5)  $(x+2)(x-7)$

6)  $(3x+4)(2x-5)$

Simplify by using the any method.

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

8)  $(x^2+5x+3)(x-7)$