<u>4.4A Mulitplying Binomials & Factoring Complex Trinomials</u>

<u>A.   Multiplying Two Binomials using Box Method</u>

Look for patterns!!!

1. $(3x+1)(2x+5)$

$= 6x^2 + 17x + 5$

	$3x$	1
$2x$	$6x^2$	$2x$
5	$15x$	5

2. $(5x+2)(3x+4)$

$= 15x^2 + 26x + 8$

	$5x$	2
$3x$	$15x^2$	$6x$
4	$20x$	8

3. $(2x-1)(x+7)$

$= 2x^2 + 13x - 7$

	$2x$	-1
x	$2x^2$	$-1x$
7	$14x$	-7

4. $(4x-5)(2x+1)$

$= 8x^2 - 6x - 5$

Look for patterns!!!

	$4x$	-5
$2x$	$8x^2$	$-6x$
$+1$	$4x$	-5

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

$= 3x^2 - 7x - 6$

	x	-3
$3x$	$3x^2$	$-9x$
$+2$	$2x$	-6

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

$= 10x^2 + 11x - 6$

	$2x$	$+3$
$5x$	$10x^2$	$15x$
-2	$-4x$	-6

7. $(3x-1)(5x-2)$

$= 15x^2 - 11x + 2$

	$3x$	-1
$5x$	$15x^2$	$-5x$
-2	$-6x$	2

8. $(5x+3)(2x-5)$

$= 10x^2 - 19x - 15$

Look for patterns!!!

	$5x$	$+3$
$2x$	$10x^2$	$6x$
-5	$-25x$	-15

9. $(3x-1)(x+3)$

$= 3x^2 + 8x - 3$

	$3x$	-1
x	$3x^2$	$-1x$
$+3$	$9x$	-3

10. $(5x+2)(x-3)$

$= 5x^2 - 13x - 6$

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

B.   Factoring Complex Trinomials

**complex trinomials have a leading coefficient that is NOT ="1".

1. $3x^2 - 10x - 8$
$= (3x+2)(x-4)$

	x	-4
$3x$	$3x^2$	$-12x$
2	$2x$	-8

M -24
A -10
N $-12, 2$

2. $10x^2 + 3x - 1$
$= (5x-1)(2x+1)$

	$5x$	-1
$2x$	$10x^2$	$-2x$
1	$5x$	-1

Look for patterns!!!

M -10
A 3
N $-2, 5$

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

	x	3
$2x$	$2x^2$	$6x$
1	x	3

Look for patterns!!!

M 6
A 7
N $6, 1$

4. $15x^2 - 11x + 2$
$= (5x-2)(3x-1)$

	$3x$	-1
$5x$	$15x^2$	$-5x$
-2	$-6x$	2

M 30
A -11
N $-5, -6$

5. $10x^2 + 19x - 15$
$= (2x+5)(5x-3)$

	$2x$	5
$5x$	$10x^2$	$25x$
-3	$-6x$	-15

M -150
A 19
N $25, -6$

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

	x	-1
$2x$	$2x^2$	$-2x$
-1	-1	1

M 2
A -3
N $-2, -1$

7. $14x^2 - 19x - 3$
$= (7x+1)(2x-3)$

Look for patterns!!!

	$2x$	-3
$7x$	$14x^2$	$-21x$
1	$2x$	-3

M -42
A -19
N $-21, 2$

8. $9x^2 - 24x + 16$
$= (3x-4)(3x-4)$
$= (3x-4)^2$

Perfect Square

	$3x$	-4
$3x$	$9x^2$	$-12x$
-4	$-12x$	16

M 144
A -24
$-12, -12$

9. $3x^2 - 4x - 7$
$= (x+1)(3x-7)$

	$3x$	-7
x	$3x^2$	$-7x$
1	$3x$	-7

M -21
A -4
N $-7, 3$

10. $10x^2 + 3x - 1$
$= (5x-1)(2x+1)$

	$2x$	1
$5x$	$10x^2$	$5x$
-1	$-2x$	-1

Look for patterns!!!

M -10
A 3
N $5, -2$