4.4B More Mulitplying Binomials & Factoring Complex Trinomials

A. Multiplying Two Binomials

1. $(2x+3y)(4x-y)$

$= 8x^2 + 10xy - 3y^2$

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

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

Look for patterns!!!

$= 5x^2 - 3xy - 15xy + 9y^2$

$= 5x^2 - 18xy + 9y^2$

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

$= 15x^4 + 7x^2 - 2$

	$5x^2$	-1
$3x^2$	$15x^4$	$-3x^2$
2	$10x^2$	-2

Look for patterns!!!

4. $(3a-4b)(5a-b)$

$= 15a^2 - 3ab - 20ab + 4b^2$

$= 15a^2 - 23ab + 4b^2$

5. $(3xy+2z)(2xy-5z)$

$= 6x^2y^2 - 11xyz - 10z^2$

	$3xy$	$2z$
$2xy$	$6x^2y^2$	$4xyz$
$-5z$	$-15xyz$	$-10z^2$

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

$= 15x^2 + 10xy + 6xy + 4y^2$

$= 15x^2 + 16xy + 4y^2$

7. $(3m+2n)(2m+5n)$

$= 6m^2 + 19mn + 10n^2$

	$3m$	$2n$
$2m$	$6m^2$	$4mn$
$5n$	$15mn$	$10n^2$

8. $(3x-4ab)(2x+5ab)$

$= 6x^2 + 15abx - 8abx - 20a^2b^2$

$= 6x^2 + 7abx - 20a^2b^2$

Look for patterns!!!

B. Factoring Complex Trinomials

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

1. $3x^2 - 5xy + 2y^2$

$= (3x-2y)(x-y)$

	$3x$	$-2y$
x	$3x^2$	$-2xy$
$-y$	$-3xy$	$2y^2$

M 6
A -5
N -2, -3

2. $8a^2 + 6ab + b^2$

$= 8a^2 + 4ab + 2ab + b^2$
$= 4a(2a+b) + b(2a+b)$
$= (2a+b)(4a+b)$

Look for patterns!!!

M 8
A 6
N 4, 2

3. $10x^4 + x^2 - 3$

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

	$2x^2$	-1
$5x^2$	$10x^4$	$-5x^2$
3	$6x^2$	-3

Look for patterns!!!

M -30
A 1
N -5, 6

4. $6x^2 - 17xy + 5y^2$

$= (2x-5y)(3x-y)$

5. $6x^2 - xy - y^2$

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

6. $12m^2 - 16mn - 3n^2$

$= (2m-3n)(6m+n)$

7. $x^2 + xy - 6y^2$

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

8. $6x^2y^2 - xyz - 2z^2$

$= (2xy+z)(3xy-2z)$

9. $2 - 11x + 12x^2$

$= (4x-1)(3x-2)$

10. $3x^2 + 2xy - 8y^2$

$= (3x-4y)(x+2y)$