4.6 Mulitplying & Factoring Difference of Squares

A. Multiplying Two Binomials (DoS)

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

$= x^2 - 9$

	x	3
x	x^2	$3x$
-3	$-3x$	-9

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

$= x^2 - 5x + 5x - 25$

$= x^2 - 25$

Look for patterns!!!

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

$= x^2 - 81$

	x	-9
x	x^2	$-9x$
9	$9x$	-81

Look for patterns!!!

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

$= 4x^2 - 2x + 2x - 1$

$= 4x^2 - 1$

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

$= 9x^2 - 25$

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

$= 9x^2 - 4$

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

$= 4x^2 - 25y^2$

8. $(5x-4y)(5x+4y)$

$= 25x^2 - 16y^2$

Look for patterns!!!

9. $(2x^2-3y^4)(2x^2+3y^4)$

$= 4x^4 - 9y^8$

10. $(x^2-3y)(x^2+3y)$

$= x^4 - 9y^2$

B. Factoring a Difference of Squares

two perfect square numbers with a difference between them

1. $x^2 - 9$

$= x^2 + 0x - 9$ slow

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

M -9

A 0

N $-3, 3$

x^2	$-3x$
$3x$	-9

2. $9x^2 - 16$ $(3x)^2$ $(4)^2$

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

Look for patterns!!!

3. $25x^2 - 81$ $(5x)^2$ 9^2

$= (5x + 9)(5x - 9)$

4. $9x^2 - 1$

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

Look for patterns!!!

5. $4x^2 - 25$

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

6. $4x^2 - 81y^2$

$= (2x - 9y)(2x + 9y)$

7. $49x^2y^2 - 100z^2$

$= (7xy + 10z)(7xy - 10z)$

Look for patterns!!!

8. $36x^4 - 121y^2z^2$

$= (6x^2 - 11yz)(6x^2 + 11yz)$