## 9.4 Multiplying Special Cases

## The Square of a Binomial:

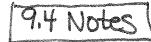
The expressions  $(a+b)^2$  and  $(a-b)^2$  are squares of binomials. To square a binomial, you can use FOIL or use the following rule:

$$(a+b)^{2} = \frac{\alpha^{2} + 2ab + b^{2}}{(a-b)^{2}} = \frac{\alpha^{2} - 2ab + b^{2}}{(a-b)^{2}}$$

**Note-> The so	juare of a binon	nial is the	Square
of the Arst	term plus	twice	the
product	of the _	two	
terms plus the _	Square		of the
last	term.		

Examples: 1.  $(x + 7)^2$  b = 7  $x^2 + 2(x \cdot 7) + 7$   $x^2 + 14x + 149$ 3.  $(t + 6)^2$  a = t b = 4  $t^2 + 2(t \cdot 6) + 6^2$  $t^2 + 12t + 36$ 

2. 
$$(4k-3)^2$$
  $(4K)^2 - 2(4K)(3) + 3^2$   $(4K)^2 - 24K + 9$  4.  $(5y+1)^2$   $(5y)^2 + 2(5y\cdot 1) + 1^2$   $(5y)^2 + 10y + 1$ 



5. 
$$(7m - 2p)^2$$
  $\begin{pmatrix} a = 7m \\ b = 2p \end{pmatrix}$   $(7m)^2 - 2(7m \cdot 2p) + (2p)^2$   $\begin{pmatrix} 49m^2 - 28mp + 4p^2 \end{pmatrix}$ 

6. 
$$(9c-8)^2$$
  $\begin{pmatrix} a=9c \\ b=8 \end{pmatrix}$   $(9c)^2 - 2(9c.8) + 8^2$   $8|c^2 - 144c + 64|$ 

## The Difference of Squares:

$$(a+b)(a-b) = 0^2 - b^2$$

The product of the sum and difference of the same two terms is the <u>differences</u> of their <u>Squares</u>.

## Examples:

1. 
$$(a + 8)(a - 8)$$
  
 $a^2 - 8^2$   
 $a^2 - 64$ 

3. 
$$(d+11)(d-11)$$

$$\frac{d^2-||^2}{||^2-||^2|}$$

5. 
$$(9j + 2)(9j - 2)$$
  
 $(9j)^2 - 2^2$   
 $(8j)^2 - 4$ 

2. 
$$(x + 4)(x - 4)$$
  
 $x^2 + 4^2$   
 $x^2 - 16$ 

4. 
$$(c^2 + 7)(c^2 - 7)$$

$$(c^2)^2 - 7^2$$

$$(c^4 - 49)$$

6. 
$$(9v^3 + w^4)(9v^3 - w^4)$$
  
 $(9v^3)^2 - (w^4)^2$   
 $8v^6 - w^8$