Sec 9-4: Expanding Special Cases

Terms like the following $(x + 7)(x - 7)$

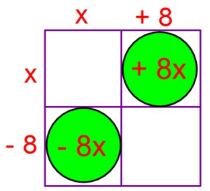
Are called CONJUGATES

Something "nice" happens EVERY TIME you multiply CONJUGATES.

Result of multiplying Conjugates

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

$(x + 8)(x - 8)=$



You always end up with only two terms because the middle terms are opposites and cancel

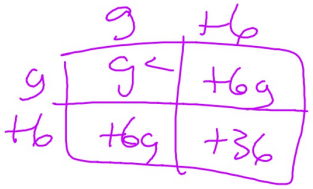
2. $(3w + 5)(3w - 5) =$ $9w - 25$

$(3w)^2 - (5)^2$

3. $(4k^2 - 9)(4k^2 + 9) =$ $16k^4 - 81$

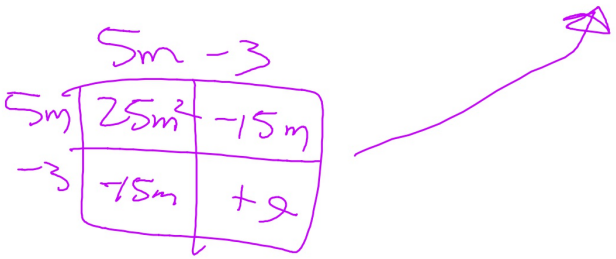
$(4k^2)^2 - (9)^2$

4. $(g + 6)^2 = (g + 6)(g + 6) =$ $g^2 + 12g + 36$



Whenever you expand the square of a binomial like these you will NEVER get just two terms!!!!

5. $(5m-3)^2 = (5m-3)(5m-3) =$ $25m^2 - 30m + 9$



What do you notice?

Expand each.

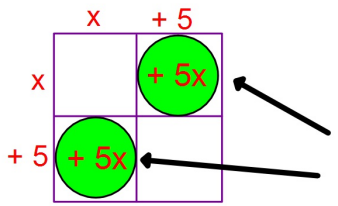
1. $(d + 7)^2$

$= d^2 + 14d + 49$

2. $(x - 3)^2$

$= x^2 - 6x + 9$

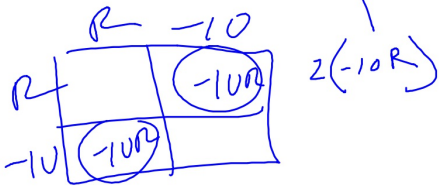
$(x + 5)^2 = (x + 5)(x + 5) =$



These are always the same when you square a binomial so the final result is two times one of them

Expand: $(R - 10)^2$

$R^2 - 20R + 100$



What is the shortcut for expanding $(R - 10)^2$

Only works if the coefficient of the variable is 1

$R^2 + R2(-10) + (-10)^2$

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

Expand each.

1. $(G + 5)^2$

$G^2 + 2(5)G + 5^2$

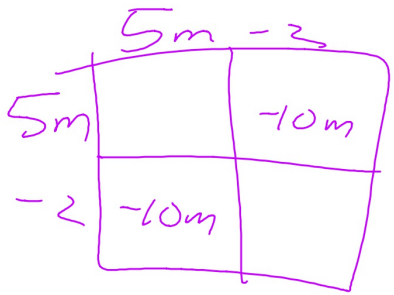
$= G^2 + 10G + 25$

2. $(A - 8)^2$

$A^2 - 2(8)(A) + 8^2$

$= A^2 - 16A + 64$

Expand. $(5m - 2)^2$



$25m^2 - 20m + 4$

Expand.

$(3n + 8)^2$

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

What is the shortcut to finding the middle term?

$2(3n \cdot 8)$

$2ab$

Expand.

1. $(3e - 4)^2$

$(3e)^2 - 2(3e)(4) + (4)^2$

$9e^2 - 24e + 16$

2. $(2B + 9)^2$

$(2B)^2 + 2(2B)(9) + (9)^2$

$4B^2 + 36B + 81$

Expand. $(3e - 5f)^2$

$(3e)^2 - 2(3e)(5f) + (5f)^2$

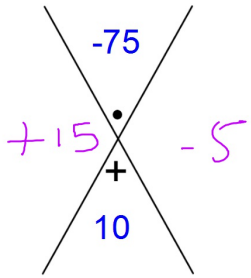
$= 9e^2 - 30ef + 25f^2$

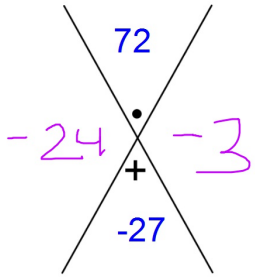
You can now do Hwk #19 Sec 9-4

Pages 477-478

Problems 4, 5, 16, 17, 29, 37, 38, 46, 49, 50

Due tomorrow





Expanding Jeopardy: The work for exanding two binomials is shown but some of the begining information has been lost. Can you fill in the missing information?

	x	-5
2x	$2x^2$	-10x
+7	+7x	-35

Expanding Jeopardy: The work for exanding two binomials is shown bu some of the begining information has been lost. Can you fill in the missing information?

	3x	+2
x	$3x^2$	+2x
+8	+24x	+16

Expanding Jeopardy: The work for exanding two binomials is shown bu some of the begining information has been lost. Can you fill in the missing information?

	x	-6
x	x^2	-6x
+4	+4x	-24

Expanding Jeopardy: The work for exanding two binomials is shown bu some of the begining information has been lost. Can you fill in the missing information?

	2x	-3
4x	$8x^2$	-12x
-9	-18x	+27