MATH 8 – QUARTER 1 LESSON 1

Let's exercise our mind.

Solve the following:

1. $4^2 =$ **16**

2. $7^2 =$ **49**

3. $(5x)^2 =$ **$25x^2$**

4. $(7a)(8a) =$ **$56a^2$**

5. $(9c)(6d) =$ **$54cd$**

6. $2b(11b + 10) =$

$22b^2 + 20b$

7. $(a + 4)(a - 5) =$ **$a^2 - 5a + 4a - 20$**

$a^2 - a - 20$

8. $(x - 3)^2 =$ **$x^2 - 6x + 9$**

SPECIAL PRODUCTS

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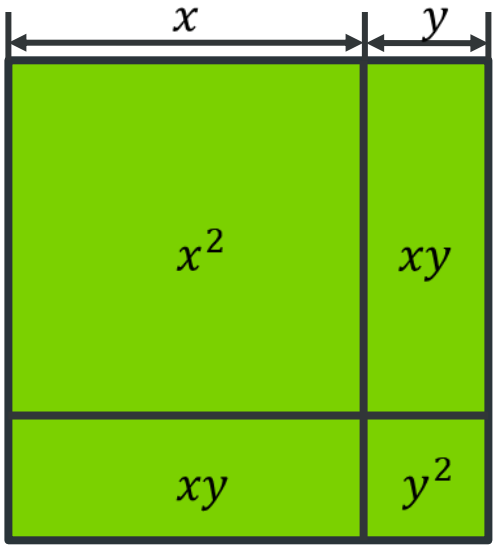
- shortcut to multiplying polynomials.
- it does not apply to all multiplication of polynomials.
- patterns or formulas are provided to arrive with the correct product.

SQUARE OF BINOMIALS

Square of Binomials



$s = x + y$

$Area\ of\ square = (x+y)^2 = (x+y)(x+y)$

$(x+y)^2 = x^2 + xy + xy + y^2$

$(x+y)^2 = x^2 + 2xy + y^2$

$(x-y)^2 = x^2 - 2xy + y^2$

$$(x \pm y)^2 = x^2 \pm 2xy + y^2$$

Recall:

$Area\ of\ square = s^2$

$Area\ of\ rectangle = lw$

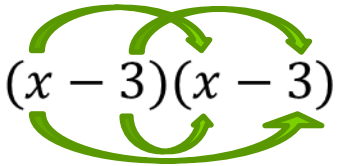
Square of Binomials

$$(x \pm y)^2 = x^2 \pm 2xy + y^2$$

Examples:

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

   $(x-3)^2 = x^2 - 6x + 9$ ✓



$(x-3)(x-3) = x^2 - 3x - 3x + 9$

$= x^2 - 6x + 9$ ✓

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

   $(x+5)^2 = x^2 + 10x + 25$

3. $(3x+4y)^2 = (3x)^2 + 2(3x)(4y) + (4y)^2$

   $(3x+4y)^2 = 9x^2 + 24xy + 16y^2$

The square of a binomial is made up of the square of the first term, twice the product of the first and second/last term, and the square of the second/last term.

Let's Try

Complete the table.

	First Term	Second Term	Third Term	Product
	y^2	$12y$	36	$\mathbf{y^2 + 12y + 36}$
	$4x^2$	$12x$	9	$\mathbf{4x^2 + 12x + 9}$
	$25x^2$	$-40xy$	$16y^2$	$\mathbf{25x^2 - 40xy + 16y^2}$

Remember:

- The square of a binomial is denoted by:

  $(x \pm y)^2 = x^2 \pm 2xy + y^2$

- The square of a binomial is made up of:

  the square of the first term, twice the product of the first and second/last term, and the square of the second/last term.

THANK YOU!!!