

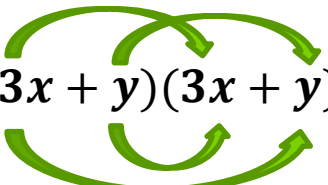
The background is a solid green color. It is decorated with various mathematical symbols in a lighter shade of green, scattered across the surface. These symbols include plus signs (+), minus signs (-), multiplication signs (x), and division signs (÷).

# The Product of a Sum and Difference of the Same Two Terms

# Let's exercise our mind.

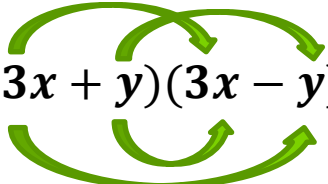
Solve the following by using distributive property.

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



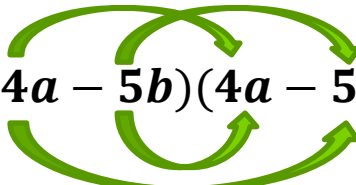
$$9x^2 + 3xy + 3xy + y^2$$
$$= 9x^2 + 6xy + y^2$$

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



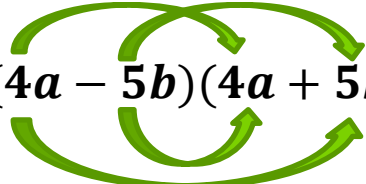
$$9x^2 - 3xy + 3xy - y^2$$
$$= 9x^2 - y^2$$

2.  $(4a - 5b)(4a - 5b)$



$$16a^2 - 20ab - 20ab + 25b^2$$
$$= 16a^2 - 40ab + 25b^2$$

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



$$16a^2 + 20ab - 20ab - 25b^2$$
$$= 16a^2 - 25b^2$$

Square of Binomials

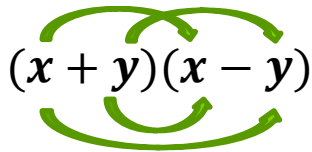
THE PRODUCT OF A SUM  
AND DIFFERENCE OF THE  
SAME TWO TERMS

# THE PRODUCT OF A SUM AND DIFFERENCE OF THE SAME TWO TERMS

$$(6p + 7)(6p - 7) = (6p - 7)(6p + 7) \quad (11c + 2d)(11c - 2d) \quad (x + y)(x - y)$$

$$(-5a + 8)(5a + 8) = (8 - 5a)(8 + 5a) \quad [(3a + 2b) + 4][(3a + 2b) - 4]$$

Multiply Using the Distributive Property of Multiplication


$$(x + y)(x - y)$$

$$\begin{array}{l} x^2 - \cancel{xy} + \cancel{xy} - y^2 \\ \hline (x + y)(x - y) = x^2 - y^2 \end{array}$$

# THE PRODUCT OF A SUM AND DIFFERENCE OF THE SAME TWO TERMS

Examples:

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

$$1. \begin{matrix} (6p + 7) \\ x \quad y \end{matrix} \begin{matrix} (6p - 7) \\ x \quad y \end{matrix} = (6p)^2 - (7)^2 \text{ or } (6p)^2 - (-7)^2$$
$$\underline{36p^2 - 49} \quad \checkmark$$

$$(6p + 7)(6p - 7) = 36p^2 - \cancel{42p} + \cancel{42p} - 49$$
$$\underline{36p^2 - 49} \quad \checkmark$$

# THE PRODUCT OF A SUM AND DIFFERENCE OF THE SAME TWO TERMS

Examples:

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

$$2. \underset{x}{(11c + 2d)} \underset{y}{(11c - 2d)} = (11c)^2 - (2d)^2 = \underline{121c^2 - 4d^2}$$

$$3. (-5a + 8)(5a + 8) = (8 - 5a)(8 + 5a) \\ = (8)^2 - (5a)^2 \\ = 64 - 25a^2 \\ = \underline{-25a^2 + 64}$$

$$4. [(3a + 2b) + 4][(3a + 2b) - 4] = (3a + 2b)^2 - (4)^2 \\ = [(3a)^2 + 2(3a)(2b) + (2b)^2] - (4)^2 \\ = \underline{9a^2 + 12ab + 4b^2 - 16}$$

# THE PRODUCT OF A SUM AND DIFFERENCE OF THE SAME TWO TERMS

Examples:  $(x + y)(x - y) = x^2 - y^2$

$$\begin{aligned} 5. [(7c - d) + 2][(7c - d) - 2] &= (7c - d)^2 - (2)^2 \\ &= [(7c)^2 - 2(7c)(d) + (-d)^2] - (2)^2 \\ &= \underline{49c^2 - 14cd + d^2 - 4} \end{aligned}$$

## Remember:

- The product of the sum and difference of the same two terms is denoted by

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

where  $x$  and  $y$  are the first and second terms, respectively.



## Activity #3

Find the product of the following: (Show your solution and use the formula.)

1.  $(11s + 2t)(11s - 2t) =$

3.  $(-6 + 7z)(6 + 7z) =$

2.  $(8m - 9n)(8m + 9n) =$

4.  $[(5j + 4k) + 2][(5j + 4k) - 2] =$

The background is a solid green color. It is decorated with a repeating pattern of light green geometric shapes: squares, circles, and crosses. These shapes are arranged in a way that they appear to be floating or scattered across the background. The text "THANK YOU!!!" is centered in the middle of the image in a white, bold, sans-serif font. The exclamation marks are slightly larger than the letters.

THANK YOU!!!