

The background is a solid green color with various mathematical symbols scattered across it. These symbols include plus signs (+), minus signs (-), multiplication signs (x), and squares, all in a lighter shade of green. Some symbols are larger and more prominent, while others are smaller and more subtle. The symbols are distributed in a way that suggests a mathematical or algebraic theme.

# Square Of Trinomial

# Let's exercise our mind.

Observe the product of the following square of binomials. Find if there is a wrong term and change it to a correct one.

1.  $(a + 6)^2 = a^2 + 12a + 36$  ✓

4.  $(e + 9)^2 = e^2 + 18e + 81$  ✓

2.  $(3b - 7)^2 = 9b^2 + \underline{42b} + 49$

5.  $(4f - 3g)^2 = \underline{16f} + \underline{24g} - \underline{9g^2}$

$(3b - 7)^2 = 9b^2 - 42b + 49$  ✓

$(4f - 3g)^2 = 16f^2 - 24fg + 9g^2$  ✓

3.  $(5c - 2d)^2 = 25c^2 - 20cd + \underline{4}$

$(5c - 2d)^2 = 25c^2 - 20cd + 4d^2$  ✓

# SQUARE OF A TRINOMIAL

# Square of a Trinomial

Trinomial – A polynomial with exactly three terms.


$$5x - 2y + 1$$

$$x^2 + 3y + 7$$

$$a + b - c$$

Multiply Using the Distributive Property of Multiplication

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


$$\begin{array}{r} (x + y + z)(x + y + z) \\ + \quad \begin{array}{r} x^2 + xy + xz \\ + xy + y^2 + yz \\ + xz + yz + z^2 \end{array} \\ \hline x^2 + 2xy + 2xz + y^2 + 2yz + z^2 \\ (x + y + z)^2 = \underline{x^2 + y^2 + z^2 + 2xy + 2xz + 2yz} \end{array}$$

# Square of a Trinomial

Examples:

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2xz + 2yz$$

$$\begin{aligned} 1. \quad & \underset{x}{(3d)} + \underset{y}{2e} + \underset{z}{f} \bigg)^2 = (3d)^2 + (2e)^2 + (f)^2 + 2(3d)(2e) + 2(3d)(f) + 2(2e)(f) \\ & = \underline{9d^2 + 4e^2 + f^2 + 12de + 6df + 4ef} \quad \checkmark \end{aligned}$$

$$\begin{array}{r} \text{Diagram: } (3d + 2e + f)(3d + 2e + f) \text{ with green arcs connecting } 3d \text{ to } 3d, 2e, f \text{ and } 2e \text{ to } 3d, 2e, f \text{ and } f \text{ to } 3d, 2e, f. \\ \begin{array}{r} (3d + 2e + f)(3d + 2e + f) \\ + \quad \begin{array}{r} 9d^2 + 6de + 3df \\ + 6de \quad + 4e^2 + 2ef \\ + 3df \quad + 2ef + f^2 \end{array} \\ \hline 9d^2 + 12de + 6df + 4e^2 + 4ef + f^2 \end{array} \\ (3d + 2e + f)^2 = \underline{9d^2 + 4e^2 + f^2 + 12de + 6df + 4ef} \quad \checkmark \end{array}$$

# Square of a Trinomial

Examples:

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2xz + 2yz$$

$$\begin{aligned} 2. (5a - b + 4)^2 &= (5a)^2 + (-b)^2 + (4)^2 + 2(5a)(-b) + 2(5a)(4) + 2(-b)(4) \\ &= \underline{25a^2 + b^2 + 16 - 10ab + 40a - 8b} \end{aligned}$$

$$\begin{aligned} 3. (m + 3n - 6p)^2 &= (m)^2 + (3n)^2 + (-6p)^2 + 2(m)(3n) + 2(m)(-6p) + 2(3n)(-6p) \\ &= \underline{m^2 + 9n^2 + 36p^2 + 6mn - 12mp - 36np} \end{aligned}$$

# Square of a Trinomial

Examples:

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2xz + 2yz$$

$$\begin{aligned} 4. (3x - 7y - 3)^2 &= (3x)^2 + (-7y)^2 + (-3)^2 + 2(3x)(-7y) + 2(3x)(-3) + 2(-7y)(-3) \\ &= \underline{9x^2 + 49y^2 + 9 - 42xy - 18x + 42y} \end{aligned}$$

## Remember:

- The square of a trinomial is computed by the formula:

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2xz + 2yz$$

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



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 scattered across the entire surface, creating a textured, patterned effect.

THANK YOU!!!