Perfect Square Trinomials Part 1

- A perfect square trinomial is an exact/perfect square of a binomial.
- we abbreviate perfect square trinomials as PSTs
- There are two possibilities:

$(a+b)^2 = \ldots$ or $(a-b)^2 = \ldots$

$(a+b)^2 = (a+b)(a+b)$
$= a^2 + ab + ba + b^2$
$= \underbrace{a^2 + 2ab + b^2}_{\text{a PST}}$

$(a-b)^2 = (a-b)(a-b)$
$= a^2 - ab - ba + b^2$
$= \underbrace{a^2 - 2ab + b^2}_{\text{a PST}}$

- Then PSTs are of the form $a^2 + 2ab + b^2$ or $a^2 - 2ab + b^2$

Or, combining the two, and using $\pm$ to illustrate options, we get:

$$\boxed{a^2 \pm 2ab + b^2} = (a \pm b)^2$$

Some Observations:

① A PST starts with a perfect square.

② A PST ends with a perfect square.

③ What is the middle term like?