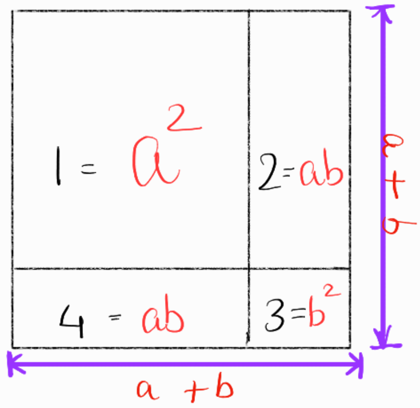
Explanation for an algebric expression

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

Lets express this formula as a geometrical expression.



You can see the above square 5 which is divided into 2 squares and 2 rectangles.

Side of square 1 = a

Area of square 1 = a^2

Length of rectangle 2 = a

Breadth of rectangle 2 = b

Area of rectangle 2 = ab

Side of square 3 = b

Area of square 3 = b^2

Length of rectangle 4 = a

Breadth of rectangle 4 = b

Area of rectangle 4 = ab

Side of square 5 = $a + b$

Area of square 5 = $(a + b)^2$

Area of square 5 can also be written as :-

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

$$\therefore (a + b)^2 = a^2 + b^2 + 2ab \ (\text{i.e.} - ab + ab)$$

Hence, we have proved the expression –

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