

Were you taught this at school?

Arithmetic

$$94^2 = ?$$

$$\begin{array}{r} 94 \\ \times 94 \\ \hline 376 \\ + 8460 \\ \hline \mathbf{8836} \end{array}$$

Algebra

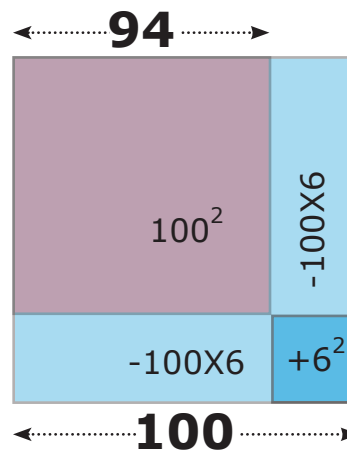
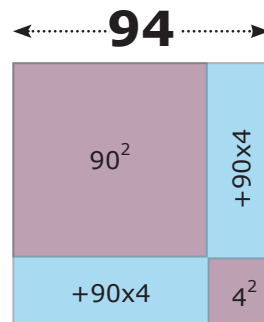
$$94^2 = ?$$

$$\begin{aligned} (a + b)^2 &= a^2 + 2ab + b^2 \\ (90 + 4)^2 &= 90^2 + 2 \times 90 \times 4 + 4^2 \\ &= 8100 + 720 + 16 \\ &= \mathbf{8836} \end{aligned}$$

$$\begin{aligned} (a - b)^2 &= a^2 - 2ab + b^2 \\ (100 - 4)^2 &= 100^2 - 2 \times 100 \times 6 + 6^2 \\ &= 10000 - 1200 + 36 \\ &= \mathbf{8836} \end{aligned}$$

Geometry

$$94^2 = ?$$



Math is so amazing, yet at schools we are taught it in such a way that we find no clue of what we are doing and why we are doing it.

Look at the mathematician at TED, for example. How interestingly he finds the square of any number mentally, faster than we can using a calculator.

http://www.ted.com/talks/lang/en/arthur_benjamin_does_mathemagic.html

If you carefully examine the geometric shape for finding the square of any number, you will easily realize that the same concept can also be used for multiplication purpose. For example, if you need to multiply 94 by 98 instead, while the column remains same, you change the row to 90 + 8 segment, giving you an answer of $8100 + 90 \times 4 + 90 \times 8 + 8 \times 4 = 9212$.