Shortcut Tricks to find the Square of Numbers

SQUARE OF NUMBERS

- Square of a number is the product obtained by multiplying a number by itself
  - \(2 \times 2 = 4\)
  - \(11 \times 11 = 121\)

- To find the square of two digit numbers (10-99) we can consider the following steps
  1) Let the 2-digit number be = \(AB\)
  2) Now to find \(AB^2\)
  3) Unit digit of square = \(B^2\)
  4) Ten’s digit of square = \(2 \times A \times B\) (\(+\) Carry if any from the previous step)
  5) The rest of the digits of square = \(A^2\) (\(+\) Carry if any from the previous step)

FOR EXAMPLE

\(67^2 = ?\)

\(AB^2 = 67^2\)

STEP 1:

\(B^2 = 7^2 = 49\)

Here “9” is the unit digit and “4” is carry

\(\Rightarrow 67^2 = _ _ _ 9\)

STEP 2:

\([2 \times A \times B]\) + Carry from previous step i.e., 4

\(2 \times A \times B = 2 \times 6 \times 7 = 84\)
Add Carry ‘4’ with the above ‘84’ we get \([84+4= 88]\)

Therefore at the end of the 2\(^{nd}\) Step

From Step 1, here “8” is the unit digit and “8” is carry

\[ \rightarrow 67^2 = \_ \_ 89 \]

STEP 3:

\(A^2 = 6^2 = 36\)

There is a carry of ‘8’ from the previous step

Therefore, \([36+8] = 44\)

The final answer is \(67^2 = 4489\)

To find the square of a number which is a **multiple of 5**

\(AB^2 = [A \times \text{next number}] \ B^2\)

\(25^2 = [2 \times 3]^2\)

\[ = [6] \ 25 = 625\]

i.e., \(AB^2\) where \(B=5\)

\(AB^2 = [A \times \text{next number}] \ B^2\)

For example, \(85^2 = [8 \times 9]^2 = 7225\)

\[115^2 = [11 \times 12]^2 = 13225\]

\[155^2 = [15 \times 16]^2 = 24025\]

This method can be followed for all numbers divisible by 5