Fast and Easy Method to Take Square Root- Math Tricks:

SQUARE ROOT

POINTS TO REMEMBER:

- When $2^2 = 4$, then $\sqrt{4} = 2$
- Here 4 is the **square** of 2
- 2 is the **square root** of 4
- A **Square** of a number can **never end** with **2, 3, 7** and **8**

Table 1:

One's digit of a square	One's digit of the square root
1	1 or 9
4	2 or 8
5	5
6	4 or 6
9	7 or 3

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

$25^2 = [2\times3]\ 5^2$

$= [6]\ 25 = 625$

i.e., AB^2 where **B=5**

AB^2 = [A× next number] B^2

For example, **85^2** = [8×9] 25 = **7225**

115^2 = [11×12] 25 = **13225**

155^2 = [15×16] 25 = **24025**

This method can be followed for all numbers divisible by 5

TYPE 1:

To find the square root of a 3-digit number

EXAMPLE: **√841**

STEP 1: Consider the one's digit of the given number i.e., 1

From Table 1, if the one's digit of the square is '1' then the square root would either end with **'1'** or **'9'**

STEP 2: Always **ignore the ten's digit** of the given number

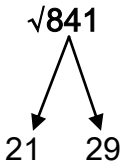
STEP 3: Now the remaining number other than the one's and the ten's digit in the given number is **'8'**

Consider a **square-root of a square** which is **nearer to** as well as **lesser than** '8'.

Here it is '4' which is nearer to as well as lesser than '8'. Hence the square root of 4 i.e., **'2'** is taken

STEP 4: we already know the one's digit of the square root to be either 1 or 9 from STEP 1

Therefore the square root of '841' lies between **21** and **29**



STEP 5:

Take a number **divisible by '5'** between 21 and 29, that is **'25'**

25^2 = [2×3] 25 = **625**

Now **625 < 841**

25^2 is itself lesser than 841. Then 21^2 will be **much lesser** than **841.**

Therefore, the remaining option is '29'

√841 = 29

TYPE 2:

To find the square root of a 4-digit number

EXAMPLE: **√8464**

STEP 1: Consider the one's digit of the given number i.e., 4

From Table 1, if the one's digit of the square is '4' then the square root would either end with **'2'** or **'8'**

STEP 2: Always **ignore the ten's digit** of the given number

STEP 3: Now the remaining numbers other than the one's and the ten's digit in the given number is **'84'**

Consider a **square-root of a square** which is **nearer to** as well as **lesser than** '84'.

Here it is **'81'** which is nearer to as well as lesser than '84'. Hence the square root of 81 i.e., **'9'** is taken

STEP 4: we already know the one's digit of the square root to be either 2 or 8 from STEP 1

Therefore the square root of '8464' lies between **92** and **98**

STEP 5:

Take a number **divisible by '5'** between 92 and 98, that is **'95'**

95^2 = [9×10] 25 = **9025**

Now **9025 > 8464**

95^2 is itself greater than 8464. Then **98^2** will be **much greater** than **8464**

Therefore, the remaining option is '92'

$\sqrt{8464} = 92$

TYPE 4:

To find the square root of a 5-digit number

EXAMPLE: **$\sqrt{18769}$**

STEP 1: Consider the one's digit of the given number i.e., 9

From Table 1, if the one's digit of the square is '9' then the square root would either end with **'3'** or **'7'**

STEP 2: Always **ignore the ten's digit** of the given number

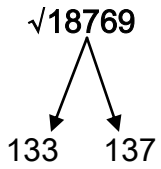
STEP 3: Now the remaining numbers other than the one's and the ten's digit in the given number is **'187'**

Consider a **square-root of a square** which is **nearer to** as well as **lesser than** '187'

Here it is **'169'** which is nearer to as well as lesser than 187. Hence the square root of 169 i.e., **'13'** is taken

STEP 4: we already know the one's digit of the square root to be either 3 or 7 from STEP 1

Therefore the square root of '18769' lies between **133** and **137**



STEP 5:

Take a number **divisible by '5'** between 133 and 137, that is **'135'**

135^2 = [13×14] 25 = **18225**

Now **18225 < 18769**

135^2 is itself smaller than 18769. Then **133^2** will be **much lesser** than **18769**

Therefore, the remaining option is ‘137’

√18769 = 137