CALCULATION-03

SQUARE ROOT

(वर्ग मूल)

CLASS NOTES

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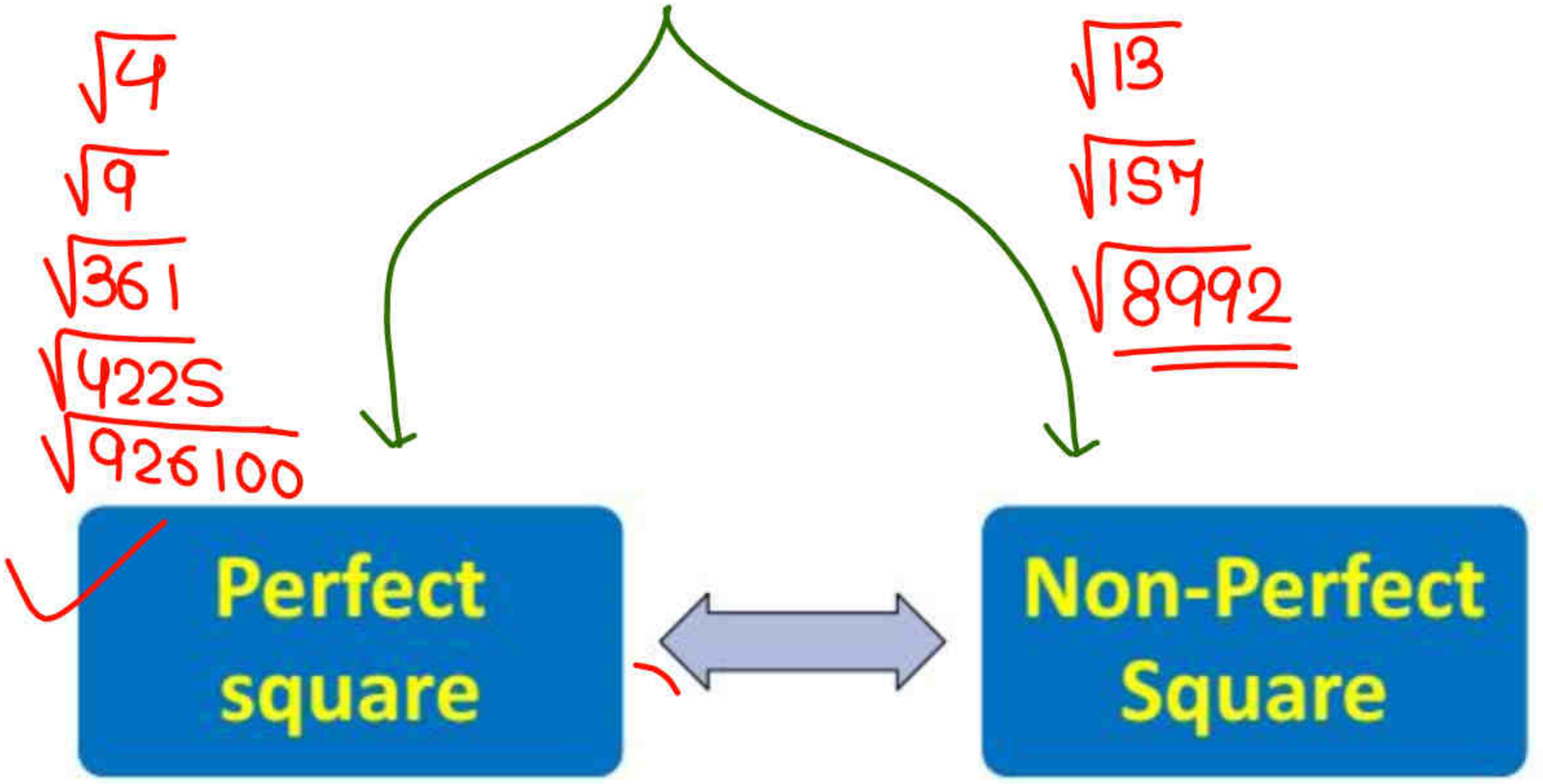
Square Root / वर्गमूल



Square Root of perfect square
पूर्ण वर्ग का वर्गमूल

$1^2 = 1$

$2^2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

$6^2 = 36$

$7^2 = 49$

$8^2 = 64$

$9^2 = 81$

$10^2 = 100$

Example: Calculate the square root of 5184

Step 01: The unit digit of 5184 is 4, so its square root will be end on 2 or 8.

Step 02: Now leave two digits from end and check the remaining number. In this, case it is 51.

$$7^2 < 5 < 8^2$$

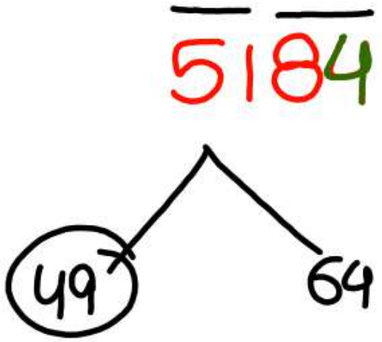
So, the tens digit of square root is 7.

Step 03: Now the square root of 5184 can be 72 or 78.

For this, we have to check whether 51 is closer to 7^2 or 8^2

As 51 is closer to 7^2.

Square root of 5184 is 72.



$\sqrt{2}$ ✓

or

$\sqrt{8}$

Example: Calculate the square root of 3136

Step 01: The unit digit of 3136 is 6, so its square root will be end on 4 or 6.

Step 02: Now leave two digits from end and check the remaining number. In this, case it is 31.

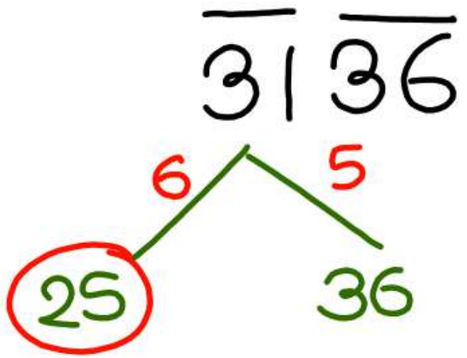
$$5^2 < 31 < 6^2$$

So, the tens digit of square root is 5.

Step 03: Now the square root of 3136 can be 54 or 56. For this, we have to check whether 31 is closer to 5^2 or 6^2

As 31 is closer to 6^2.

Square root of 3136 is 56.



5 4
or
5 6 ✓

Find the square root of

$(\overline{7744}) =$

13 4

64 81

82 or 88

$(\overline{1764}) =$

16 25

42 or 48

$(\overline{6561}) =$

64 81

81 or 89

$(\overline{7396}) =$

64 8 81

84 or 86

$\sqrt{2916} =$

$\sqrt{7569} =$

64 11 6 81

८३ or ८७

$\sqrt{4489} =$

$\sqrt{4225} =$

$\sqrt{9216} =$

11 8

81 100

94 or 96 ✓

$\sqrt{3249} =$

$\sqrt{1764} =$

$\sqrt{4624} =$

$\sqrt{9216} =$

Example: Calculate the square root of 15129

Step 01: The unit digit of 15129 is 9, so its square root will be end on 3 or 7.

Step 02: Now leave two digits from end and check the remaining number. In this, case it is 151.

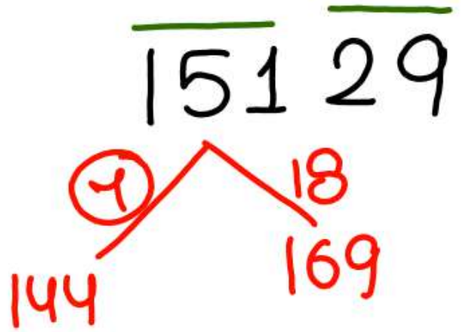
$$12^2 < 151 < 13^2$$

So, the first two digits of square root of 15129 is12.

Step 03: Now the square root of 15129 can be 123 or 127. For this, we have to check whether 151 is closer to 12^2 or 13^2

As 151 is closer to 12^2.

Square root of 15129 is 123.



12 3 or 12 4

$\sqrt{18769}$ =

9

169 196

133 or 137

$\sqrt{63001}$ =

625 676

251 or 259

$\sqrt{24964}$ =

$\sqrt{70225}$ =

265

Ans $\sqrt{54756} =$

$\sqrt{33489} =$

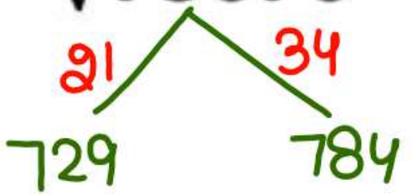
$\sqrt{69169} =$

676 729

२६ ३ or २६ ७

$\sqrt{75076} =$

$\sqrt{75076} =$



274 or 276

Find the square root of $\overline{923521}$

$\overline{92}\,\overline{35}\,\overline{21}$ $= 22 = 4$

-81

$9 \quad 6 \quad 1 \rightarrow 7 \rightarrow 49$

$9 \quad 6 \quad 9 \rightarrow 6 \rightarrow 36 \rightarrow 961$

Find the square root of 173056

$\overline{1}\,\overline{73}\,\overline{05}\,\overline{6} = 4$

4 | 1 | 4 → 9 → 9

or

4 | 1 | 6 → 2 → 4

Any in comment Box

Find the square root of 552049

Square Root of Non-perfect square
अपूर्ण वर्ग का वर्गमूल

$\sqrt{13}$ → 9 → y

↓

x

$$\frac{x+y}{2\sqrt{y}}$$

$$= \frac{13+9}{2\sqrt{9}}$$

$$= \frac{22}{2\times 3} = \frac{11}{3} = 3.66$$

Ex. $\sqrt{10}$ = $\rightarrow 9 \rightarrow y$

$\downarrow$

x

$$\frac{x+y}{2\sqrt{y}}$$

$$\frac{10+9}{2\times 3} = \frac{19}{6} = 3.1\ldots$$

Ex. $\sqrt{14}$ =

$9 \to y$

x

$\frac{x+y}{2\sqrt{y}}$

$\frac{14+9}{2\times3} = \frac{23}{6} = 3.8\overline{3}$

Ex. $\sqrt{18} =$

$x = 18 \rightarrow 16 \rightarrow y$

$\frac{x+y}{2\sqrt{y}}$

$= \frac{18+16}{2\times4} = \frac{34}{8} = 4.2\ldots$

Ex. $\sqrt{29} =$

$\rightarrow 25$

$\frac{29+25}{2\times5} = 5.4$

Ex. $\sqrt{57} =$

$\rightarrow 49$

$\frac{57+49}{2\times7} = \frac{106}{14} = 7.5$

Ex. $\sqrt{265}$ =

256 → y

x

$\frac{x+y}{2\sqrt{y}}$

$\frac{265+256}{2\times16} = \frac{521}{32} = 16.$

Ex. $\sqrt{374}$ =

361

$\frac{374+361}{2\times19} = \frac{735}{38} = 19.3$

Ex. $\sqrt{445}$ =