Cosmo School

Class – 7

Chapter – 1

Rational and Irrational Number

Lecture sheet – 2

Solution

1. a) 169

$$13 \overline{)\,169\,} \quad 13$$

$169 = 13 \times 13$

$= (13 \times 13)$

$\therefore$ The square root of 169 = $\sqrt{169} = 13$

Required square root is 13

Ans: 13.

b) 529

$$23 \overline{)\,529\,} \quad 23$$

$529 = 23 \times 23$

$= (23 \times 23)$

$\therefore$ The square root of 529 = $\sqrt{529} = 23$

Required square root is 23

Ans: 23.

c) 1521

$$\begin{array}{r|l} 3 & 1521 \\ \hline 3 & 507 \\ \hline 13 & 169 \\ \hline & 13 \end{array}$$

$1521 = 3 \times 3 \times 13 \times 13$

$= (3 \times 3) \times (13 \times 13)$

∴ The square root of 1521 = $\sqrt{1521} = 3 \times 13 = 39$

Required square root is 39

Ans: 39.

d) 11025

$$\begin{array}{r|l} 5 & 11025 \\ \hline 5 & 2205 \\ \hline 3 & 441 \\ \hline 3 & 147 \\ \hline 7 & 49 \\ \hline & 7 \end{array}$$

$11025 = 5 \times 5 \times 3 \times 3 \times 7 \times 7$

$= (5 \times 5) \times (3 \times 3) \times (7 \times 7)$

∴ The square root of 11025 = $\sqrt{11025} = 5 \times 3 \times 7 = 105$

Required square root is 105

Ans: 105.

e) 1849

$$\begin{array}{r|l} 43 & 1849 \\ \hline & 43 \end{array}$$

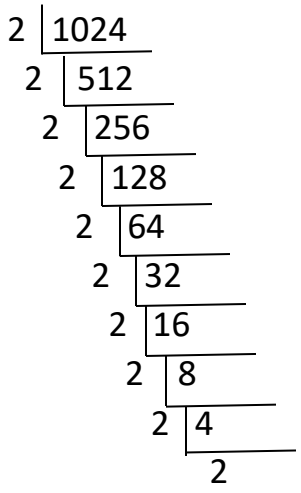
$1849 = 43 \times 43 = (43 \times 43)$

∴ The square root of 1849 = $\sqrt{1849} = 43$

Required square root is 43

Ans: 43.

f) 1024



$1024 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

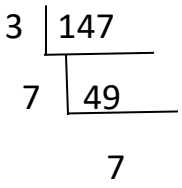
$= (2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (2 \times 2)$

$\therefore$ The square root of 1024 = $\sqrt{1024} = 2 \times 2 \times 2 \times 2 \times 2 = 32$

Required square root is 32

Ans: 32.

2. a) 147



$147 = 3 \times 7 \times 7 = 3 \times (7 \times 7)$

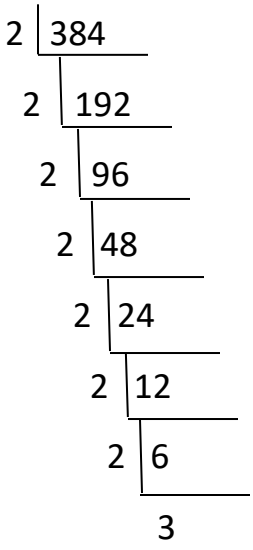
There is no pair of 3. If 3 has a pair then the number will become perfect square number.

So if we multiply the number with 3 then the number will become perfect square number.

Required number is 3.

Ans: 3.

b) 384



$384 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$

$= (2 \times 2) \times (2 \times 2) \times (2 \times 2) \times 2 \times 3$

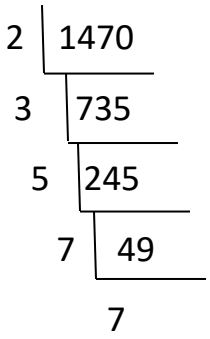
There is no pair of 2 and 3. If 2 and 3 has a pair then the number will become perfect square number.

So if we multiply the number with (2×3) or 6 then the number will become perfect square number.

Required number is 6.

Ans: 6.

c) 1470



$1470 = 2 \times 3 \times 5 \times 7 \times 7 = 2 \times 3 \times 5 \times (7 \times 7)$

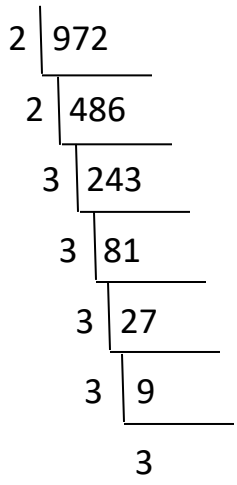
There is no pair of 2, 3 and 5. If 2, 3 and 5 has a pair then the number will become perfect square number.

So if we multiply the number with (2×3×5) or 30 then the number will become perfect square number.

Required number is 30.

Ans: 30.

3.a) 972



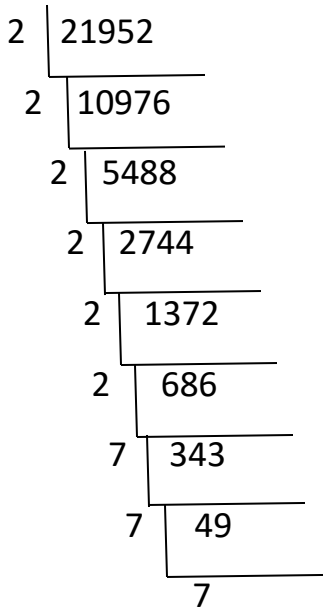
$972 = 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 3 = (2 \times 2) \times (3 \times 3) \times (3 \times 3) \times 3$

There is no pair of 3. So if we divide the number with 3 then the number will become perfect square number.

Required number is 3.

Ans: 3.

b) 21952



$21952 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 7 \times 7 \times 7$

$= (2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (7 \times 7) \times 7$

There is no pair of 7. So if we divide the number with 7 then the number will become perfect square number.

Required number is 7.

Ans: 7.

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4. 3136

Here the number of dots are 2.

∴ Square root is 2 digit based.

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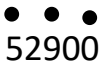
1234321

Here the number of dots are 4.

∴ Square root is 4 digit based.



52900

Here the number of dots are 3.

∴ Square root is 3 digit based.