



Class – 7

Chapter – 1

Rational and Irrational Number

Lecture sheet – 11

Creative Question

Revision

1. 4056, 7601 and 677894 are three numbers.

a) What is the smallest number that divides 4056 to make it perfect square?

b) what is the smallest number subtracted from 7601 to make it perfect square? What is the number?

c) What smallest number is added with 677894 to make it perfect square?

Solution:

a)

$$\begin{array}{r} 2 \overline{) 4056} \\ \underline{2028} \\ 2 \overline{) 1014} \\ \underline{1014} \\ 3 \overline{) 507} \\ \underline{1521} \\ 13 \overline{) 169} \\ \underline{169} \\ 0 \end{array}$$

13

$$\begin{aligned} \therefore 4056 &= 2 \times 2 \times 2 \times 3 \times 13 \times 13 \\ &= (2 \times 2) \times (13 \times 13) \times 2 \times 3 \end{aligned}$$

Here, 2 and 3 have no pairs. So, 2×3 or 6. If we divide 4056 by 6 the number will be a perfect square.

Ans : 6 .

b)

$$\begin{array}{r}
 8 \mid \overline{76\ 01} \ (87) \\
 \underline{64} \\
 167 \mid 12\ 01 \\
 \underline{11\ 69} \\
 32
 \end{array}$$

Therefore 7601 is not a perfect square. If we subtract 32 from 7601 the result will be perfect square.

\therefore The required number = $(7601 - 32) = 7569$

Ans : 32, 7569.

c)

$$\begin{array}{r}
 8 \mid \overline{67\ 78\ 94} \ (823) \\
 \underline{64} \\
 162 \mid 3\ 78 \\
 \underline{3\ 24} \\
 1643 \mid 54\ 94 \\
 \underline{49\ 29} \\
 5\ 65
 \end{array}$$

We observe that, $(823)^2 < 677894 < (824)^2$

\therefore The required number = $(824)^2 - 677894$

$$= (824 \times 824) - 677894$$

$$= 678976 - 677894 = 1082$$

So that, if we add 1082 with 677894 the result will be perfect square.

Ans : 1082.

2. In a class each gives 5 paisa so the total taka is Tk. 245.

a) Let students number is 'a' and express the total taka in term of a.

b) What is the number of student?

c) How many students should be admitted to make a perfect square?

Solution :

a) Let the number of students is a.

Each students give $(a \times 5)$ paisa or $5a$ paisa

So, the total number of taka $(5a \times a)$ paisa or $5a^2$ paisa

Ana : $5a^2$.

b) Here, Tk. 245 = (245×100) paisa [1 taka = 100 paisa]

$$= 24500 \text{ paisa}$$

\therefore Amount of total money = 24500 paisa

ATQ,

$$5a^2 = 24500$$

$$\text{Or, } a^2 = 24500 \div 5$$

$$\text{Or, } a^2 = 4900$$

$$\text{Or, } a = 70$$

So the number of students = 70

Ans : 70 students

$$\begin{array}{r} 8 \overline{) 70} \quad (8 \\ \underline{64} \\ 6 \end{array}$$

We observe that, $(8)^2 < 70 < (9)^2$

$$\begin{aligned} \therefore \text{The required number} &= (9)^2 - 70 \\ &= (9 \times 9) - 70 \\ &= 81 - 70 = 11 \end{aligned}$$

11 students should take admission.

Ans : 11 students.

Exercise

1. 361, 23805 and 1006009 three numbers.

- Find out the square root of 361 using factors.
- Which number must be multiplied with 23805 to make it perfect square?
- Find out the square root of 1006009 using division method?

2. 0.00005625 and 12.21 are two decimal fraction>

- Express 0.00005625 in terms of $\frac{a}{b}$; where a and b are integer and there is no common factor between them except 1.
- Find out the square root of 0.00005625.

c) Find out the square root of 12.21 upto three decimal place.

3. 802.5889 and 0.047 are two decimal fractions.

a) Express 0.047 in denominator of 1000.

b) Find the square root of 802.5889.

c) Find out the square root of 0.047 up to five decimal place.