

Value Based Questions

Que 1. In order to celebrate Van Mahotsav, the students of a school planned to plant two types of trees in the nearby park. They decided to plant 144 trees of type A and 84 trees of type B. If the two types of plants are to be in the same number of columns, find the maximum number of columns in which they can be planted.

What values do these students possess?

Sol. Maximum number of columns in which the two types of plants can be planted = HCF of 144 and 84 Since $144 > 84$

So, by division lemma, $144 = 84 \times 1 + 60$

Again, applying division lemma (since remainder $\neq 0$), we get

$$84 = 60 \times 1 + 24$$

Continuing the same way,

$$60 = 24 \times 2 + 12 \quad \text{and} \quad 24 = 12 \times 2 + 0$$

$\therefore$ Remainder at this stage = 0

$\therefore$ HCF (144, 84) = 12

Environmental protection, sincerity, social work, cooperation.

Que 2. In a seminar on the topic 'Liberty and Equality', the number of participants in Hindi, Social Science and English are 60, 84 and 108 respectively.

(i) Find the minimum number of rooms required if in each room the same number of participants

are to be seated and all of them being from the same subject.

(ii) Which mathematical concept has been used in this problem?

(iii) Which values are discussed in the above problem?

Sol. (i) The number of rooms will be minimum if each room accommodates maximum number of participants. Since in each room the same number of participants are to be seated and all of them must be on the same subject, therefore, the number of participants in each room must be the HCF of 60, 84, 108.

The prime factorisation of 60, 84 and 108 are as under.

$$60 = 2^2 \times 3 \times 5 \quad \text{and} \quad 84 = 2^2 \times 3 \times 7$$

$$108 = 2^2 \times 3^3$$

$$\text{HCF} = 2^2 \times 3 = 12$$

$$\therefore \text{Number of rooms required} = \frac{\text{Total Number of Participants}}{12}$$

$$= \frac{60+84+108}{12} = \frac{252}{12} = 21$$

(ii) Mathematical concept used in the above problem is highest common factor, i.e., H.C.F.

(iii) Liberty and equality are the pay marks of democracy.

Que 3. Three sets of English, Hindi and Sociology books dealing with cleanliness have to be stacked in such a way that all the books are stored topic wise and the height of each stack is the same. The number of English books is 96, the number of Hindi books is 240 and the number of Sociology books is 336.

(i) Assuming that the books are of the same thickness, determine the number of stacks of each subject.

(ii) Which mathematical concept is used in this problem?

(iii) Which habits are discussed in this problem?

Sol. (i) In order to arrange the books as required we have to find the largest number that divides 96, 240 and 336 exactly. Clearly, such a number is their HCF.

$$96 = 2^5 \times 3$$

$$240 = 2^4 \times 3 \times 5$$

$$336 = 2^4 \times 3 \times 7$$

$$\therefore \text{HCF of 96, 240 and 336 is } 2^4 \times 3 = 48$$

So, there must be 48 books in each stack.

$$\therefore \text{Number of stacks of English books} = \frac{96}{48} = 2$$

$$\text{Number of stacks of Hindi books} = \frac{240}{48} = 5$$

$$\text{Number of stacks of sociology books} = \frac{336}{48} = 7$$

(ii) HCF of number.

(iii) Cleanliness and orderliness have been discussed in this question. Cleanliness leads to good health and orderliness makes a person better organised in life.

Que 4. There is a circular path around a sports field. Priya takes 12 minutes to drive one round of the field. While Ravish takes 10 minutes for the same. Suppose they both start from the same point and at the same time and go in the same direction.

(i) After how many minutes will they meet again at the starting point?

(ii) Which mathematical concept is used in this problem?

(iii) What is the value discussed in this problem?

Sol. (i) Required number of minutes is

LCM of (12, 10)

$$12 = 2 \times 2 \times 3$$

$$10 = 2 \times 5$$

$$\text{LCM} = 2 \times 2 \times 3 \times 5 = 60$$

Hence, they meet at starting point after 60 minutes.

(ii) LCM of number.

(iii) Health competition is necessary for person development and progress.