

CLASS	VI
SUBJECT	MATHEMATICS
TOPIC	PLAYING WITH NUMBERS
SUB TOPIC	L.C.M
NO OF SESSIONS	7/8

Introduction:

LCM (Lowest Common Multiple)

The LCM of two or more than two numbers is the product of the highest powers of all the prime factors that occur in these numbers.

Example: Find the LCM of 36, 48, 64 and 72

2	36,	48,	64,	72
2	18,	24,	32,	36
2	9,	12,	16,	18
2	9,	6,	8,	9
3	9,	3,	4,	9
3	3,	1,	4,	3
	1,	1,	4,	1

$$\therefore \text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 4 = 576.$$

Product of Two Numbers

HCF of numbers \times LCM of numbers = Product of numbers.

i.e., if the numbers are A and B. then

$$\text{HCF of A and B} \times \text{LCM of A and B} = A \times B$$

Example:

Find the L.C.M. of 12 and 20 by prime factorization method.

Solution: $12=2 \times 2 \times 3$ and $20=2 \times 2 \times 5$

$$\therefore \text{L.C.M} = 2 \times 2 \times 3 \times 5 = 60.$$

(ii)L.C.M. by division method:

2	14, 56, 91, 84
2	7, 28, 91, 42
7	7, 14, 91, 21
	1, 2, 13, 3

$$\therefore \text{L.C.M} = 2 \times 2 \times 7 \times 2 \times 13 \times 3 = 2184.$$

Assignment:

I. Find the L.C.M. of the following by listing their multiples.

(i) 5, 10, 15

(ii) 4, 10, 12

(iii) 3, 9, 12

(iv) 2, 8, 10

(v) 7, 14, 21

(vi) 10, 20, 25

II. Find the L.C.M. of the following by finding common prime factors.

(i) 60, 75, 120

(ii) 48, 80, 112

(iii) 18, 54, 72

(iv) 10, 15, 25

(v) 20, 35, 45

(vi) 16, 24, 48

III. Find the L.C.M. by division method.

(i) 70, 110, 150

(ii) 25, 30, 150

(iii) 36, 60, 120

(iv) 30, 150, 300

(v) 25, 45, 105

(vi) 21, 49, 63

IV. Solve the following:

(i) Find the lowest number which leaves 4 as remainder when divide by 9 and 12.

(ii) Find the lowest number which being increased by 3 is exactly divided by 8, 12 and 16.

(iii) Find the lowest number which is less by 5 to be divided by 15, 25 and 50 exactly.

(iv) Find the lowest number which is less by 2 to be divided by 56 and 98 exactly.

(v) Find the lowest number which is more by 7 to be divided by 20, 50 and 100 exactly.

(vi) The product of the L.C.M. and H.C.F. of two numbers is 80. If one of the numbers is 20, find the other number.

(vii) Find the lowest number which is less by 9 to be divided by 21, 35 and 49 exactly.

(viii) The product of two numbers is 192. If the H.C.F. of the numbers is 4, find their L.C.M.

(ix) The H.C.F. two numbers is 6 and their L.C.M. is 36. If one of the numbers is 18, find the other number.

(x) The product of the H.C.F. and L.C.M. of two numbers is 1050. Find the product of numbers.

(xi) The product of two numbers is 144. If the L.C.M. of these numbers is 12, find their H.C.F.

(xii) The product of two numbers is 169. If the L.C.M. of these numbers is 13, find their H.C.F.

Homework: Exercise 3.6 → Questions 1,2,3

Video link

<https://m.youtube.com/watch?v=BWHSDIWNm4>