HW

Thursday

Ex. 8 C

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1. Using the common multiple method, find the L.C.M.

i) 8, 12 and 24

Ans → 8 → 8, 16, 24, 32, 40, 48, 56.....

12 → 12, 24, 36, 48, 60, 72, 84.....

24 → 24, 48, 72, 96, 120.....

Common Multiple → 24, 48

L.C.M. → 24

ii) 10, 15 and 20

Ans → 10 → 10, 20, 30, 40, 50, 60, 70, 80.....

15 → 15, 30, 45, 60, 75, 90, 105.....

20 → 20, 40, 60, 80, 100, 120, 140.....

Comon Multiple → 60

L.C.M. → 60

iii) 3, 6, 9 and 12

Ans → 3 → 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36.....

6 → 6, 12, 18, 24, 30, 36.....

9 → 9, 18, 27, 36, 45, 54.....

12 → 12, 24, 36 48, 60 .....

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Common Multiple → 36

L.C.M. → 36

2) Find the L.C.M. of each of the following groups, using i) prime factor method and ii) common division method:

i) 18, 24 and 96

Ans →

2	18, 24, 96
3	9, 12, 48
2	3, 4, 16
2	3, 2, 8
	3, 1, 4

LCM = 2 × 3 × 2 × 2 × 3 × 4 = 288

ii) 34, 85 and 51

17	34, 85, 51
	2, 5, 3

LCM = 17 × 2 × 5 × 3 = 510

iii) 14, 21, 98

2	14, 21, 98
7	7, 21, 49
	1, 3, 7

LCM = 2 × 7 × 3 × 7 = 294

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H.C.F. X L.C.M. = Product of the two given numbers.

Ex → H.C.F. of 12 and 18 = 6

L.C.M. of 12 and 18 = 36

H.C.F. X L.C.M. = 36 X 6 = 216

12 X 18 = 216.

3) The H.C.F. and the L.C.M. of two numbers are 50 and 300 respectively. If one of the numbers is 150, find the other one.

Ans → H.C.F. = 50

L.C.M. = 300

Product of 2 numbers = H.C.F. X L.C.M.

= 50 X 300

= 15,000

= 15,000 ÷ 15 = 100

Therefore, the second number is 100.

```
      100
150 | 15,000
    - 150
      ---
       00
     -  0
       --
       00
     -  0
       --
       0
```

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1) Find the smallest number, when divided by 12, 15, 18, 24 and 36 leaves no remainder.

Ans→

3	12, 15, 18, 24, 36
2	4, 5, 6, 8, 12
2	2, 5, 3, 4, 6
3	1, 5, 3, 2, 3
	1, 5, 1, 2, 1

L.C.M. = 3 × 2 × 2 × 3 × 5 × 2 = 360

Therefore, 360 is the smallest number which, when divided by 12, 15, 18, 24 and 36 leaves no remainder.

2) ii) 100, 150 and 200

Ans→

2	100, 150, 200
5	50, 75, 100
5	10, 15, 20
2	2, 3, 4
	1, 3, 2

L.C.M. = 2 × 5 × 5 × 2 × 3 × 2 = 600

iii) 22, 121 and 33

Ans→

11	22, 121, 33
	2, 11, 3

L.C.M. = 11 × 2 × 11 × 3 = 726.

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4) The product of two numbers is 432 and their L.C.M. is 72. Find their H.C.F.

Ans→ Product of two numbers → 432.

L.C.M. → 72

H.C.F. → 432 ÷ 72 =

```
      6
72 | 432
    -432
     0
```

Therefore, the H.C.F. is 6.

5) The product of two numbers is 19,200 and their H.C.F. is 40. Find their L.C.M.

Ans→ Product of two numbers → 19,200

H.C.F. → 40

L.C.M. → 19,200 ÷ 40 =

```
      480
40 | 19200
    -160
     320
    -320
      00
     -0
      0
```

Therefore, the L.C.M. is 480.

7) Find the smallest number which, when increased by one is exactly divisible by 12, 18, 24, 32 and 40.

Tuesday

Ans → The smallest number which, when increased by one is exactly divisible by 12, 18, 24, 32 and 40 is its L.C.M.

2	12, 18, 24, 32, 40
2	6, 9, 12, 16, 20
2	3, 9, 6, 8, 10
3	3, 9, 3, 4, 5
	1, 3, 1, 4, 5

L.C.M. → $2 \times 2 \times 2 \times 3 \times 3 \times 4 \times 5 = 1440$

Required number → $1440 - 1 = 1439$.

Therefore, the smallest number which, when increased by one is exactly divisible by 12, 18, 24, 32 and 40 is 1439.

8) Find the smallest number which, on being decreased by 3, is completely divisible by 18, 36, 32 and 27.

Ans → The L.C.M. of 18, 36, 32 and 27 is:

2	18, 36, 32, 27
3	9, 18, 16, 27
2	3, 6, 16, 9
3	3, 3, 8, 9
	1, 1, 8, 3

L.C.M. → $2 \times 3 \times 2 \times 3 \times 8 \times 3 = 864$. Required No. → 864+3 = 867. ∴ the smallest number which, on being decreased by 3, is completely divisible by 18, 36, 32 and 27 is 867.