Ex-8(c)

1) Using the common multiple method, find the LCM

i) 8, 12 and 24

8 = 8, 16, 24, 32, 40, 48, 56, 64, 72, 80
12 = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120
24 = 24, 48, 72, 96, 120, 144, 168, 192, 216, 240
LCM = 24, 48, 72,

ii) 10, 15, 20

10 = 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
15 = 15, 30, 45, 60, 75, 90, 105, 120, 135, 150
20 = 20, 40, 60, 80, 100, 120, 140, 160, 180, 200

LCM = 60,

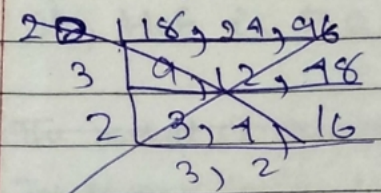
iii) 3, 6, 9 and 12

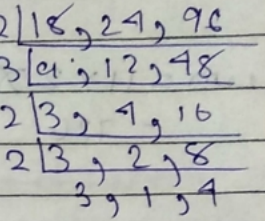
3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 36
6 = 6, 12, 18, 24, 30, 36, 42, 48, 54, 60
9 = 9, 18, 27, 36, 45, 54, 63, 72, 81, 90
12 = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120
LCM = 36

2) Find the LCM of each of the following groups of numbers, using i) the prime factor method and ii) the common division Method.

i) 18, 24, 96

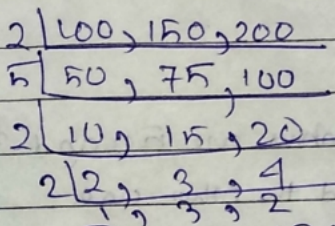
ans)





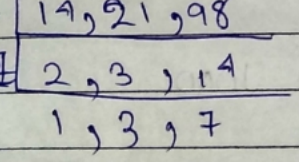
LCM = 2 × 3 × 2 × 3 × 4 = 288

ii) 100, 150 and 200



LCM = 5 × 2 × 2 × 2 × 3 × 1
= 240

iii) 14, 21, 98



LCM = 7 × 2 × 3 × 7
= 294.

iv) 22, 121, 33

11 | 22, 121, 33

2, 11, 3

LCM = 11 × 2 × 11 × 3

= 726

v) 34, 85, 51

17 | 34, 85, 51

2, 5, 3

LCM = 17 × 2 × 5 × 3

= 510

3) The HCF and LCM of two numbers are 50 and 300 respectively. If one of the numbers is 150, find the other one.

HCF = 50

LCM = 300

formula = $\frac{\text{HCF} \times \text{LCM}}{\text{one number}}$

product = 50 × 300

= 150000

one number = 150

other number = 150000/150 = 1000

4) The product of two numbers is 432 and their LCM is 72. Find their HCF

$\frac{\text{Product}}{\text{LCM}} = \frac{432}{72} = 6$

LCM = 72 | 432 | 6
      432

        0

So, HCF is 6.

~~4) The product of two number which, when divided by 15, 12~~

5) The product of two number is 19200 and their HCF is 40. find their LCM

Product = 19,200
HCF = 40

$\frac{\text{product}}{\text{HCF}} = \frac{19200}{40} = 480$

So, their LCM is 480.

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

LCM of 12, 15, 18, 24, 36 = 360

2 | 12, 15, 18, 24, 36
2 | 6, 15, 9, 12, 18
3 | 3, 15, 9, 2, 9
3 | 1, 5, 3, 2, 3
    1, 5, 1, 2, 1

LCM = 2 x 2 x 3 x 3 x 5 x 2
    = 360

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

ans. LCM of 12, 18, 24, 32 and 40

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

LCM = 2 × 2 × 2 × 3 × 3 × 4 × 5
= 1440
1440 − 1 = 1439 ~~is the smallest number.~~

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

LCM of 18, 36, 32 and 27

3 | 18, 36, 32, 27
3 | 6, 12, 32, 9
2 | 2, 4, 32, 3
2 | 1, 2, 18, 3
3 | 1, 1, 9, 3
1, 1, 3, 1

LCM = 3 × 3 × 3 × 3 × 2 × 2
= 324
324 + 3 = 327

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