Exercise - 8 (C)

Date 23/06/21
Page

CW.

1. Using the common multiple method, find the LCM of the following:

i) 8, 12 and 24

Ans⇒ 8, 12 and 24

Multiples of 8 = 8, 16, 24, 32, 40,

Multiples of 12 = 12, 24, 36, 48, 60

Multiples of 24 = 24, 48, 72, 96, 120

Common factors = 24

LCM = 24

ii) 10, 15 and 20

Ans⇒ 10, 15 and 20

Multiples of 10 = 10, 20, 30, 40, 50, 60

Multiples of 15 = 15, 30, 45, 60, 75

Multiples of 20 = 20, 40, 60, 80, 100

Common factors = 60

LCM = 60

iii) 3, 6, 9 and 12

Ans⇒ 3, 6, 9 and 12

Multiples of 3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36

Multiples of 6 = 6, 12, 18, 24, 30, 36

Multiples of 9 = 9, 18, 27, 36, 45

Multiples of 12 = 12, 24, 36, 48, 60

Common factors = 36

LCM = 36

Date 25/06/
Page

C.W

i)

2. i) 18, 24 and 96

Ans⇒ 18, 24 and 96

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)

v) 34, 85 and 51

Ans⇒ 34, 85 and 51

17	34, 85, 51
	2, 5, 3

LCM = 17 × 2 × 5 × 3 = 510

iii)

iii) 14, 21 and 98

Ans⇒ 14, 21 and 98

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

LCM = 7 × 2 × 3 × 7 = 294

ii)

ii) 100, 150 and 200

Ans⇒ 100, 150 and 200

~~10~~	~~100, 150, 200~~
	~~10.~~
5	100, 150, 200
2	20, 30, 40

$$2 \underline{| 10, 15, 20}$$
$$5 \underline{| 5, 3, 10}$$
$$1, 3, 2$$

LCM = 5×2×2×5×3×2 = 600

RELATIONSHIP BETWEEN HCF AND LCM

Q) (~~12~~) 12, 18

Ans→ HCF of 12, 18 = 2×3 = 6
LCM of 12, 18 = 2×3×3×2 = 36
HCF×LCM = 36×6 = 216
12×18 = 216
Relationship =
HCF × LCM = Product of the given numbers

3. HCF = 50, LCM = 300
First number = 150, Second number =
Product of 2 nos. = HCF×LCM
150× Second number = ~~0500~~ 50×300
= 15000
Second number = 15000÷150
= 100

```
        100
     ______
150 ) 15000
     -150
     ----
       00
      - 0
     ----
        00
       - 0
     ----
         0
```

So, the second number is 100.

HW

6. The smallest number which, when divided by 12, 15, 18, 24 and 36 leaves no remainder is their LCM.

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

LCM = 2×2×2×3×3×3×5 =
LCM = 3×2×2×3×2×5 = 360

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

~~2. i. ii)~~

2. iv. iii. 22, 121 and 33

Ans⇒ 22, 121 and 33

11 | 22, 121, 33
2, 11, 3

LCM = 2×3×11×11 = 726

i. i) 18, 24 and 96

Ans⇒ 18, 24 and 96

18 = 2×3×3
24 = 2×2×2×3
96 = 2×2×2×2×2×3
Common factors = 2, 3
~~LCM = 2×3×2×2×2×2×2×2×3 =~~
LCM = 2×2×2×2×2×3×3 = 288

(ii) 100, 150 and 200

Ans 100, 150 and 200

$100 = 2 \times 5 \times 5 \times 2$

$150 = 2 \times 3 \times 5 \times 5$

$200 = 2 \times 5 \times 5 \times 2 \times 2$

Common factors = 2, 5

$LCM = 5 \times 5 \times 3 \times 2 \times 2 \times 2 = 600$

(iii) 14, 121 and 98

Ans 14, 21 and 98

$14 = 7 \times 2$

$21 = 7 \times 3$

$98 = 2 \times 7 \times 7$

Common factors = 7

$LCM = 7 \times 7 \times 2 \times 3 = 294$

(iv) 22, 121 and 33

Ans 22, 121 and 33

$22 = 11 \times 2$

$121 = 11 \times 11$

$33 = 11 \times 3$ Common factors = 11

$LCM = 11 \times 11 \times 2 \times 3 = 726$

(v) 34, 85 and 51

Ans 34, 85 and 51

$34 = 2 \times 17$

$85 = 5 \times 17$

$51 = 3 \times 17$

LCM = Common factors = 17

$LCM = 17 \times 2 \times 5 \times 3 = 510$

4. Product of two numbers = 432
LCM = 72
HCF =
~~Relationship~~
Product of two numbers = HCF X LCM
HCF = Product ÷ LCM
= 432 ÷ 72
= 6

```
       6
72 ) 432
    -432
       0
```

So, the HCF is 6.

5. Product of two numbers = 19,200
HCF = 40
LCM =
Product of two numbers = HCF X LCM
LCM = Product ÷ HCF
= 19,200 ÷ 40
= 480

```
       480
40 ) 19,200
    -160
      320
     -320
       00
       -0
        0
```

So, the LCM is 480.

7. The smallest number which, when divided by 12, 18, 24, 32 and 40 completely is their lcm.

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

LCM = 2×2×2×3×3×4×5 = 1440

The required number = ~~1440 - 1~~
~~1400 - 1~~
= 1440 - 1
= 1439

So, the smallest number which, when ~~divided~~ increased by one is divisible by 12, 18, 24, 32 and 40 completely is 1439.

8. The smallest number which, when divided by 18, 36, 32 and 27 completely is their lcm.

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

LCM = 2×3×3×2×8×3 = 864

The required number = 864 + 3 = 867

So, the smallest number which, when decreased by three is divisible by 18, 36, 32 and 27 is 867.