

C.W
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~~8(8)~~ 8(0)

1.

i) 8, 12 & 24

A: $8 \rightarrow 8, 16, 24, 40, 48$

$12 \rightarrow 12, 24, 36, 48$

$24 \rightarrow 24, 48$

Common multiple = 24, 48

L.C.M. = 24

ii) 10, 15 & 20

A: $10 \rightarrow 10, 20, 30, 40, 50, 60$

$15 \rightarrow 15, 30, 45, 60$

$20 \rightarrow 20, 40, 60$

Common multiple = 60

L.C.M. = 60

iii) 3, 6, 9 & 12

A: $3 \rightarrow 3, 6, 9, 12$

$6 \rightarrow 6, 12, 18, 24, 30, 36$

$12 \rightarrow 12, 24, 36$

$9 \rightarrow 9, 18, 27, 36$

Q. i) 18, 24 & 96
 A: By using Prime factor method, L.C.M. of 18, 24 & 96 are given below.

Prime factors of 18 = $2 \times 3 \times 3$
 Prime factors of 24 = $2 \times 2 \times 2 \times 3$
 Prime factors of 96 = $2 \times 2 \times 2 \times 2 \times 2 \times 3$
 \therefore L.C.M. = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 288$

ii) By using Common division method, L.C.M. of 18, 24 & 96 are given below.

\therefore L.C.M. = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 288$

2	18, 24, 96
2	9, 12, 48
2	9, 6, 24
2	9, 3, 12
2	9, 3, 6
3	3, 3, 3
3	1, 1, 1
	1, 1, 1

Q. ii) 100, 150 and 600
 A. 100 $\rightarrow 2 \times 2 \times 2 \times 5 \times 5$
 150 $\rightarrow 2 \times 3 \times 5 \times 5$
 600 $\rightarrow 2 \times 2 \times 2 \times 5 \times 5$

\therefore L.C.M. = $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5$
 $\times 5 \times 5 \times 5 \times 5 =$

$$\begin{array}{r|l}
 2 & 100, 150, 200 \\
 \hline
 2 & 50, 75, 100 \\
 \hline
 5 & 25, 75, 50 \\
 \hline
 5 & 5, 15, 10 \\
 \hline
 & 1, 3, 2
 \end{array}$$

$$\text{L.C.M.} = 2 \times 2 \times 5 \times 5 \times 3 \times 2 = 600$$

ii)

iii) 14, 21 and 98

$$\begin{array}{l}
 14 = 2 \times 7 \\
 21 = 3 \times 7 \\
 98 = 2 \times 7 \times 7
 \end{array}$$

$$\begin{array}{r|l}
 2 & 14, 21, 98 \\
 \hline
 7 & 7, 21, 49 \\
 \hline
 7 & 1, 3, 7 \\
 \hline
 & 1, 3, 7
 \end{array}$$

$$\text{L.C.M.} = 2 \times 7 \times 3 \times 7 = 294$$

In division method:

$$\begin{array}{r|l}
 & 14, 21, 98 \\
 \hline
 & 14, 21, 98
 \end{array}$$

$$14 = 2 \times 7$$

$$21 = 3 \times 7$$

$$98 = 2 \times 7 \times 7$$

$$\text{LCM} = 2 \times 7 \times 3 \times 7 = 294$$

iv) 22, 121 and 33

A: $22 \rightarrow 2 \times 11$

$121 = 11 \times 11$

$33 = 3 \times 11$

L.C.M. = ~~2~~ $2 \times 3 \times 11 \times 11 = 726$

In division method :-

$$\begin{array}{r|l}
 2 & 22, 121, 33 \\
 \hline
 3 & 11, 121, 33 \\
 \hline
 11 & 11, 121, 11 \\
 \hline
 & 1, 11, 1
 \end{array}$$

L.C.M. = $2 \times 3 \times 11 \times 11 = 726$

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

A: H.C.F. = 50 L.C.M. = 300

One number = 150

We know that, Product of H.C.F and L.C.M of two numbers is equal to product of these two numbers.

$50 \times 300 = 150 \times \text{other number}$

$15000 / 150 = \text{other number}$

$100 = \text{other number}$

Hence, the other number is 100.

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

A:→ The product of two numbers is = 432
L.C.M. is = 72.

$$\text{H.C.M.} = 432 \div 72$$

$$\begin{array}{r} 72 \overline{) 432} \\ \underline{- 432} \\ 0 \end{array}$$

$$\text{H.C.M.} = 6$$

∴ 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.

A:→ The product of two numbers is = 19,200
and their H.C.F. is = 40.

$$\text{L.C.M.} \text{ is } = 19,200 \div 40$$

$$\begin{array}{r} 480 \\ 40 \overline{) 19,200} \\ \underline{- 16,000} \\ 03,200 \\ \underline{- 3,200} \\ 00,000 \\ \hline 0000 \end{array}$$

$$\text{L.C.M.} = 480$$

∴ L.C.M. is 480.

The Smallest number that is exactly divisible by each of the given numbers is their L.C.M.

∴ Required number = L.C.M. of ~~12~~, ¹⁵12, 18, 24 and 36.

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 = $3 \times 2 \times 2 \times 3 \times 5 \times 2 = 360$

Required no. = 360.

L.C.M of ~~12~~ 12, 18, 24, 32, 40.

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
2	1, 3, 1, 4, 5
	1, 3, 1, 2, 5

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

The required no. = $1440 - 1 = 1439$

8

A: First, let us solve for L.C.M. of 18, 36, 32

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ &= 864 \end{aligned}$$

$$\begin{array}{r|l} 2 & 18, 36, 32, 27 \\ \hline 2 & 9, 18, 16, 27 \\ \hline 2 & 9, 9, 8, 27 \\ \hline 2 & 9, 9, 4, 27 \\ \hline 3 & 9, 9, 2, 27 \\ \hline 3 & 9, 9, 1, 27 \\ \hline 3 & 3, 3, 1, 9 \\ \hline & 1, 1, 1, 3 \\ \hline & 1, 1, 1, 1 \end{array}$$

This can be written as

$$\text{Reqd no} = 864 + 3 = 867$$

Hence, 867 is the smallest number which, when decreased by 3 is exactly divisible by the given numbers.