

QW
25/6/21

Revision Ex - Ch-8

1) Find the H.C.F of:

i) 108, 288 and 420

$$\begin{array}{r} \text{ans) } 108 \overline{) 288} \quad (2 \\ -216 \\ \hline 72 \overline{) 108} \quad (1 \\ -72 \\ \hline 36 \overline{) 72} \quad (2 \\ -72 \\ \hline 0 \end{array}$$

Now, we will find the HCF of 36 and 420.

$$\begin{array}{r} 36 \overline{) 420} \quad (11 \\ -396 \\ \hline 24 \overline{) 36} \quad (1 \\ -24 \\ \hline 12 \overline{) 24} \quad (2 \\ -24 \\ \hline 0 \end{array}$$

∴ HCF = 12

ii) 36, 54 and 138

$$\begin{array}{r} \text{ans) } 36 \overline{) 54} \quad (1 \\ -36 \\ \hline 18 \overline{) 36} \quad (2 \\ -36 \\ \hline 0 \end{array}$$

Now, we will find the H.C.F of 18 & 138.

$$\begin{array}{r} 18 \overline{) 138} \quad (7 \\ -126 \\ \hline 12 \overline{) 18} \quad (1 \\ -12 \\ \hline 6 \overline{) 12} \quad (2 \\ -12 \\ \hline 0 \end{array}$$

∴ HCF = 6

2) Find the L.C.M of

i) 72, 80 and 252

$$\begin{array}{r|l} \text{ans) } 2 & 72, 80, 252 \\ 2 & 36, 40, 126 \\ 2 & 18, 20, 63 \\ 3 & 9, 10, 63 \\ 3 & 3, 10, 21 \\ 1 & 1, 10, 7 \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 2 \times 3 \times 3 \times 10 \\ &\quad \times 7 \\ &= 5040 \end{aligned}$$

48, 66 and 120

ans) $\begin{array}{l} 3 \mid 48, 66, 120 \\ 2 \mid 24, 33, 60 \\ 3 \mid 12, 33, 30 \\ 2 \mid 4, 11, 10 \\ 1 \mid 2, 11, 5 \end{array}$

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 3 \times 2 \times 11 \times 5 \\ &= \cancel{240} \times 2640 \end{aligned}$$

Q) State True or False.

i) H.C.F. of two prime numbers is 1. (True)

Ex Because the prime numbers have no common factor except 1. Ex: 3, 5

Factors of 3 = 1, 3

Factors of 5 = 1, 5

Common factor = 1

H.C.F. = 1

ii) H.C.F. of two co-prime numbers is 1 (True)

Because co-prime no. have no common factor except 1.

Ex - 5, 6

Factors of 5 = 1, 5

Factors of 6 = 1, 2, 3, 6

Common factor = 1

H.C.F. = 1

iii) L.C.M. of two prime numbers is equal to their product (True).

Because the prime no.s have no common factor except 1. Ex: 2, 3

Their L.C.M. = 2×3

= 6

iv) L.C.M. of two co-prime numbers is equal to their product (True). Because co-prime no.s have no common factors except 1. Ex - 5, 11
Their L.C.M = 5×11
 $= 55$

4) ans) Given, Product of two no.s = 12096
Their H.C.F = 36
We know that, Product of H.C.F and L.C.M. of two no.s is equal to the product of those two no.s.
So, here $36 \times \text{L.C.M} = 12096$
Now, to find the L.C.M. we will divide 12096 by 36.
 $\therefore 12096 \div 36$
 $= 336$
Hence, the L.C.M is 336

5) ans) Product of two no.s = 1152
One no. = 48
We know that, Product of H.C.F. and L.C.M. of two no.s is equal to the product of those two no.s.
So, here $1152 \div 48 = \text{other no.}$
Now, to find the other no we will divide 1152 by 48.
 $\therefore 1152 \div 48$
 $= 24$
Hence, the other number is 24.

6) ans) The smallest no. that is completely divisible by 28 and 42 is their L.C.M.
L.C.M. of 28 and 42

$$\begin{array}{r} 2 \overline{) 28, 42} \end{array}$$

$$\begin{array}{r} 7 \overline{) 14, 21} \end{array}$$

$$\begin{array}{r} 2, 3 \end{array}$$

$$\text{LCM} = 2 \times 7 \times 2 \times 3 = 84$$

∴ 84 is the smallest no. that is completely divisible by 28 and 42.

ii) ans) The largest no. that can divide 28 and 42 completely is the H.C.F. of 28 and 42.

H.C.F. of 28 and 42

~~28~~ Factors of 28 = 1, 2, 4, 7, 14, 28

Factors of 42 = 1, 2, 3, 6, 7, 14, 21, 42

Common factors = 1, 2, 7, 14

H.C.F. = 14

Hence, 14 is the largest no. that can divide 28 and 42 completely.

ans 7) The given two no.s are 140 and 168
Their L.C.M. =

$$\begin{array}{r} 2 \overline{) 140, 168} \end{array}$$

$$\begin{array}{r} 2 \overline{) 70, 84} \end{array}$$

$$\begin{array}{r} 7 \overline{) 35, 42} \end{array}$$

$$\begin{array}{r} 5, 6 \end{array}$$

$$= 2 \times 2 \times 7 \times 5 \times 6 = 840$$

H.C.F. = Product of the no.s

L.C.M

$$= \frac{140 \times 168}{840} = \frac{23520}{840} = 28$$

Hence, the H.C.F. is 28.

8/ans) Given no.s are 108 and 450.
Their H.C.F = 18

$$\begin{array}{r} 108 \overline{) 450} \quad (4 \\ \underline{-432} \\ 18 \end{array}$$
$$\begin{array}{r} 18 \overline{) 108} \quad (6 \\ \underline{-108} \\ 0 \end{array}$$

\therefore L.C.M. = $\frac{\text{Product of two no.s}}{\text{H.C.F}}$

$$= \frac{108 \times 450}{18}$$
$$= \frac{48600}{18}$$
$$= 2700$$

Hence, the L.C.M is 2700.