28.6.21

Revision Exercise (chapter-8)

1. Find HCF of :

(i) 108, 288 and 420

108	288	420
2 | 108	2 | 288	2 | 420
2 | 54	2 | 144	2 | 210
2 | 27	2 | 72	3 | 105
3 | 9	2 | 36	5 | 35
3	2 | 18	7
	3 | 9	
	3	

$108 = 2 \times 2 \times 3 \times 3 \times 3$

$288 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$

$420 = 2 \times 2 \times 3 \times 5 \times 7$

HCF = 12

(ii) 36, 54, 138

36	54	138
2 | 36	2 | 54	2 | 138
2 | 18	3 | 27	3 | 69
3 | 9	3 | 9	23
3	3	

$36 = 2 \times 2 \times 3 \times 3$

$54 = 2 \times 3 \times 3 \times 3$

$138 = 2 \times 3 \times 23$

HCF = 6

2. Find the LCM of :

(i) 72, 80, 252

72, 80, 252
2 | 72, 80, 252
2 | 36, 40, 126
2 | 18, 20, 63
2 | 9, 10, 63
5 | 9, 5, 63
3 | 9, 1, 63
3 | 3, 1, 21
7 | 1, 1, 7
1, 1, 1

LCM = $2 \times 2 \times 2 \times 2 \times 5 \times 3 \times 3 \times 7$

= 5040

(ii) 48, 66, 120

LCM = 2 × 2 × 2 × 2 × 3 × 5 × 11 = 2640

2	48, 66, 120
2	24, 33, 60
2	12, 33, 30
2	6, 33, 15
3	3, 33, 15
5	1, 11, 5
11	1, 11, 1
	1, 1, 1

3. State true or false :-

(i) HCF of two prime numbers is 1. True

5 and 11 are two prime numbers and their HCF is 1.

(ii) HCF of two co-prime numbers is 1. True

4 and 9 are two co-prime numbers and their HCF is 1.

(iii) LCM of two prime numbers is equal to their product. True

5 and 11 are prime numbers and their LCM is $5 \times 11 = 55$.

(iv) LCM of two co-prime numbers is equal to their product. True

4 and 9 are two co-prime numbers and their LCM $= 4 \times 9 = 36$.

4. The product of two numbers is 1296 and their HCF is 36. Find their LCM.

Product of 2 numbers = 12096

HCF = 36

LCM = $\frac{\text{Product of 2 numbers}}{\text{HCF}}$

6048 3024 1008 336

$= \frac{12096}{36}$ 18 9 3

Therefore LCM = 336.

5. The product of the HCF and the LCM of two numbers is 1152. If one number is 48, find the other one.

The product of HCF and LCM = The product of two numbers.

One number = 48

Other number = $\frac{\text{The product of HCF and LCM}}{\text{The number given}}$

576 288 144 72 24

$= \frac{1152}{48}$ 24 12 6 3

$= 24$

Therefore the other number is 24.

6. (i) Find the smallest number that is completely divisible by 28 and 42.

$$\begin{array}{r|l} 2 & 28,\ 42 \\ 7 & 14,\ 21 \\ \hline & 2,\ 3 \end{array}$$

LCM = $2 \times 7 \times 2 \times 3 = 84$

(ii) Find the largest number that can divide 28 and 42 completely.

$$\begin{array}{r|l|l} 28 & 42 & 1 \\ & 28 & \\ \hline & 14 & 2 \\ & 28 & \\ \hline & X & \end{array}$$

HCF = 14.

7. Find the LCM of 140 and 168. Use the LCM obtained to find the HCF of the given number.

$$\begin{array}{r|l} 2 & 140,\ 168 \\ 2 & 70,\ 84 \\ 7 & 35,\ 42 \\ \hline & 5,\ 6 \end{array}$$

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

Product of 2 numbers = Product of their HCF and LCM.

$$\text{HCF} = \frac{1^{st} \text{ no.} \times 2^{nd} \text{ no.}}{\text{LCM}}$$

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

8. Find the HCF of 180 and 450 and use the HCF obtained to find the LCM of the given numbers.

Numbers = 180 and 450

$$\begin{array}{r|l|l} 108 & 450 & 4 \\ & 432 & \\ \hline 18 & 108 & 6 \\ & 108 & \\ \hline & X & \end{array}$$

HCF = 18

Product of 2 numbers = Product of their HCF and LCM.

$$\text{LCM} = \frac{1^{st} \text{ no.} \times 2^{nd} \text{ no.}}{\text{HCF}}$$

$$= \frac{\cancel{108}^{6} \times 450}{\cancel{18}} = 2700$$