HCF & LCM

Q. Largest four digit no. divisible by (12, 15, 20)

→ Largest four digit no. → 9999

no. divisible by (12,15,20) is divisible by its LCM

$\therefore \frac{9999}{LCM(12,15,20)} = \frac{9999}{180} =$ ~~9900~~ Remainder = 99

$\therefore$ no divisible by 180 = (9999 − 99) = 9900

Q. If no. are in ratio (15 : 11) and HCF is 13 what are the numbers?

→ As no. are in ratio 15 : 11 then no are $15x$ & $11x$ as HCF is 13, no. must multiple of x and 13

Hence no. are

$\therefore 15x \Rightarrow 15 \times 13 \Rightarrow 195$

$\therefore 11x \Rightarrow 11 \times 13 \Rightarrow 143$

Q. HCF of two no. are is 23 and factors of LCM are 13 and 14 find biggest no.

→ as HCF is a factor of LCM and 13 and 14 also are factors of LCM.

thus no. could be 23×13 & 23×14 hence larger no. is $23 \times 14 = 322$

Q. Six bells tolls together at interval of 2, 4, 6, 8, 10 & 12 sec in 30 min how many times they tolls together

→ LCM of of time intervals = 120 sec

total time interval is = 30 × 30 sec

they toll together $\frac{60 \times 30}{120} = 15$ times during interval and 1 time at start

→ ∴ 16 times

Q. Let N divides 1305, 4665, 6905 leaving same remainder then what is the sum of digits of N?

→ we need to find no that divide all no. with same remainder for this we will find three no. that are totally divisible by that no. and HCF of this no. is required no.

∴ N = HCF of (4665-1305), (6905-4665), (6905-1

= HCF of (3360) (2240) (5600)

∴

	336	224	560	
2	168	112	280	HCF = 10×2×2×2
2	84	56	140	= 1120
2	42	28	70	
2	21	14	35	
7	3	2	5	

∴ Ans = 1+1+2+0 = 4

Q. Product of no. 4107 and HCF 37 then greater no.?

→ Let 37a, 37b are no. then

37a × 37b = 4107

ab = 3 {∵ a=1 & b=3

∴ 37×1 and 37×3 are no.

Q. three no. in ratio 3:4:5 LCM is 2400 then HCF is?

→ three no. in ratio ∴ no. are $\left(\frac{2400}{3}\right), \left(\frac{2400}{4}\right), \left(\frac{240}{5}\right)$

(800) (600) (480)

HCF of no are 40.

Q. Product of two 2028 and HCF 13 How many no pairs?

→ Let 13a, 13b then 13a×13b = 2028

ab = 12

no. of co-primes with product 12 are (1,12), (3×4) hence two pairs.

Q. least multiple of 7 which when divided by 6, 9, 15 & 18 give 4 remainder

→ $(90x + 4)$ should divide no. as 90 is LCM of nos and 7 should divide $(90x+4)$

∴ 364 from option

Q. least no. when divided by 5, 6, 7 & 8 leaves 3 but divided by 9 without remainder?

→ LCM of 5, 6, 7 & 8 is 840 then no. $(840k+3)$ should be divisible by 9. see for every k value if divisible

∴ $k = 2$

∴ $840 \times 2 + 3 = 1683$

Q. Three numbers which are co-prime such that product of first two is 551 last two 1073. sum of three is?

→ co-prime no. hence ~~LCM of~~ HCF of products is one of middle no. i.e. 29 hence other are 19, 37

∴ sum $29 + 19 + 37 = 85$

Q. Sum of no. 55 LCM and HCF are 75 and 120 what is sum of reciprocals?

→ Let a, b then $\frac{1}{a} + \frac{1}{b} = \frac{b+a}{ab} = \frac{a+b}{LCM \times HCF} = \frac{55}{600}$

$\frac{11}{120}$