1) Factors & Multiples:

if a number divides another number
a is a factor of b.

H.C.F → two or more numbers.
greatest number divides each of them exactly.

1) Factorisation → express each one of given number as product of Prime factor
2) Division → H.C.F of 2 numbers.

Divide Larger no / Smaller one. & divide the divisor by remainder. repeat the process till zero.

H.C.F of 2 or more numbers.
→ H.C.F of 2 num & 3rd num → 3 Value

2) Product of 2 numbers = Product of HCF & LCM
3) Co-Primes → if their HCF is 1 then it is Co-Prime
4) HCF of Fraction
i) H.C.F = H.C.F of Numerator / L.C.M of Denominator

1) Find H.C.F of $2^3 \times 3^2 \times 5 \times 7^4$, $2^2 \times 3^6 \times 5^2 \times 7^6$, $2^3 \times 5^3 \times 7^2$

H.C.F $= 2^2 \times 5 \times 7^2 = 980$.

2) Find H.C.F of 108, 288, 360.

108 :

2	108, 288, 360
2	54, 144, 180
3	27, 72, 90
3	9, 24, 30
	3, 8, 10

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

3) Find H.C.F of 513, 1134 & 1215.

1134) 1215 (1
1134
81) 1134 (14
81
324
324
0

H.C.F of 1134 & 1215 is 81.

H.C.F of 513 & 81

81) 513 (6
486
27) 81 (3
81
0.

H.C.F = 27.

5) $2^2 \times 3^3 \times 5 \times 7^2$ & 3, $2^3 \times 3^2 \times 5^2 \times 7^4$, $2 \times 3 \times 5^3 \times 7 \times 11$

L.C.M ⇒ Product of ~~Powe~~ highest power

6) L.C.M of 72, 108 & 2100.

$= 37800$

7) $\frac{2}{3}, \frac{8}{9}, \frac{16}{81}, \frac{10}{27}$.

$$H.C.F = \frac{H.C.F \text{ of } 2,8,16,10}{L.C.M \text{ of } 3,9,81,27} = 2/81$$

$$L.C.M = \frac{L.C.M \text{ of } 2,8,16,10}{H.C.F \text{ of } 3,9,81,27} = 80/3$$

8) H.C.F & L.C.M of 0.63, 1.05 & 2.1.

63, 105, 210.

H.C.F of 63, 105, 210 = 21. ⇒ 0.21.

L.C.M of 63, 105, 210 = 630.

= 6.30.

9) 2 numbers are in ratio 15 : 11 if H.C.F is 13, find numbers.

Req numbers be $15x$ & $11x$.

10) H.C.F of 2 number is 11 & L.C.M is 693 if one numbers 77 find other

$$\text{other no} = \frac{11 \times 693}{77} = 99.$$

11) Find the least number divisible by 6, 7, 8, 9 & 12 leaves the remainder 1 in each case.

Req. no : L.C.M of (6, 7, 8, 9, 12) + 1.

3	6	7	8	9	12
2	2	7	8	3	4
2	1,	7,	4,	3,	2
	1,	7,	2,	3,	1

$3 \times 2 \times 2 \times 7 \times 2 \times 3 = 504.$

required number = 504 + 1 = 505.

(12) Find least number exactly divisible by 12, 15, 18, 20 & 27.

: L.C.M of given numbers

3	12,	15,	20,	27
4	4,	5,	20,	9
5	1,	5,	5,	9
	1,	1,	1,	9

$= 3 \times 4 \times 5 \times 9 = 540.$

Find largest no of 4 digits exactly divisible by 12, 15, 18 & 27 ?

L.C.M = 540 as calculated.

Largest 4 digit" 9999

$\Rightarrow \frac{9999}{540}$ = Remainder 279.

9999 − 279 = **9720**.