HCF and LCM.

2	42	54	36	HCF.
3	21	27	18	$3 \times 3 = 9$
	7	9	6	

5	250, 100, 125	LCM.
5	50, 20, 25	
2	10, 4, 5	$= 5 \times 5 \times 2 \times 5 \times 2$
5	5, 2, 5	$= 500$.
2	1, 2, 5	

Quick Method.

18, 24, 30 — 2, 3, (6).

HCF = 6.

24, 36, 48 — (12)

HCF =

LCM

12, 36, 72, 144.

36 % 12

72 % 36 so LCM = 144.

144 % 72

24, 36, 72

72 % 24 LCM = 72

72 % 36

12, 36, 48

36 % 12

12	36, 48	$12 \times 7 = 144$ LCM.
3	3, 4	
4	1, 4	

36, 48

$48 \times 2 = 96$.

$48 \times 3 = 144$.

144 % 36 = 7mm

LCM = 144.

$\frac{1}{30} - \frac{1}{45}$

$= \frac{45-30}{30 \times 45} = \frac{1}{90}$ LCM

$\frac{4}{30} - \frac{2}{45}$.

$\frac{180-60}{30 \times 45} = \frac{120}{30 \times 45}$.

1) LCM of 36, 48, 72
225 150 65

LCM fraction = LCM Numerator / HCF denominator

12 | 36, 48, 72
2 | 4, 6
2 | 2, 3
3 | 1, 3

= 12 × 12
= 144.

+ | 225, 150, 65
45, 30, 13

LCM = 144/5.

2) HCF of 36/75, 48/150, 72/135 ?

hcf fraction = hcf numerator / LCM denominator

hcf 12 | 36, 48, 72
3, 4, 6.

LCM
5 | 150, 135
3 | 30, 27
2 | 10, 9
3 | 5, 9
3 | 5, 3
5 | 5, 1

hcf = 12/1

3) Greatest number divides 17, 42 and 93 and remainder 4, 3 and 15 ↓ GCD / HCF

17/x gives R=4 ⇒ 13/x
42/x → R=3 ⇒ 39/x
93/x → R=15 ⇒ 78/x

hcf
13 | 13, 39, 78
1, 3, 6 x

Answer = 13

Least - LCM
Total no. of something.

5) least number divided by 36, 24 and 16 leaves 11 as remainder in each case

least = LCM.

4	36, 24, 16
3	9, 6, 4
2	3, 2, 4
	3, 1, 2

$4 \times 3 \times 2 \times 3 \times 2$

$24 \quad 6$

$= 144.$

$144 + 11$

$= \frac{155}{36} = 11$

$\frac{155}{24} = 11$

6) least number when divided by 20, 48 and 36 leaves remainder 13, 41 and 29.

4	20, 48, 36
3	5, 12, 9
	5, 4, 3

$4 \times 3 \times 5 \times 4 \times 3$

$12 \quad 60$

$= 720.$

7) least possible 4 digit number when divided by 12, 16, 18 and 20 leaves 21 as remainder?

2	12, 16, 18, 20
2	6, 8, 9, 10
3	3, 4, 9, 5
	1, 4, 3, 5

$\frac{2 \times 2 \times 3}{12} \times \frac{4 \times 3 \times 5}{12 \quad 5}$

$= 720.$

(3 digit)

multiple of 720 will be divisible by 12, 16, 18, 20.

$720 \times 2 = 1440 + 21$ (question remainder)

$= 1461.$

7) ratio of 2 numbers is 5:6 and their LCM is 480. then hcf is ?

$5k \times 6k = k \times 480$.

$30k = 480$.

$k = 16 \rightarrow$ hcf. (missing)

A B

HCF LCM

$A \times B = HCF \times LCM$

5 | 15, 20 hcf = 5

3, 4

5 | 15, 20 LCM = 60.

3, 4

8) hcf and LCM of two numbers is 8 and 96. sum of those numbers is 56. what is the sum of reciprocals?

$A + B = 56$.

$A \times B = 8 \times 96$.

$\frac{1}{A} + \frac{1}{B} = \frac{A+B}{AB} = \frac{56}{8 \times 96}$

$= 7/96$.

9) Largest number divide by 45, 35 and 27 leaving same remainder in each case? what will be common remainder?

45 - 35 - 27.

45 - 35 = 12

35 - 27 = 8

27 - 27 = 20.

4 | 12, 8, 20

3, 2, 5

hcf = 4.

Answer = 4.

4 | 45 4 | 35 4 | 27

3 3 3

10) 3 equilateral triangle with sides 114cm, 76cm and 152cm. maximum size scale can measure them exactly?

2	114, 76, 152
19	57, 38, 76
	3 2 4

HCF = 38.

11) If $(x-4)$ is the hcf of $x^2-8x+15$ and x^2-kx-1 then what is k?

$x^2-8x+15=0$.

$x^2-kx-1=0$.

$x-4=0$.

$x=4$.

$16-32+15 = 16-4k-1$.

$-17 = -4k-1$

$4k = 16$.

$\boxed{k=4}$

12) 5 clocks rings automatically 12, 8, 3, 4, 10 mins. In 8 hours how many times they'll ring?

2	12, 8, 3, 4, 10
2	6, 4, 5
	3, 2, 15

$= 4 \times 30$.

$= 120$. (2 hours) $\rightarrow$ 1 time

8 hours = 4 time

13) 3 cyclists ~~cycle~~ cycle along the jungle and completes one around in 27, 45, 63 mins. when will they meet again?

$$3 \mid 27, 45, 63$$
$$3 \mid 9, 15, 21$$
$$3, 5, 7$$

$= 9 \times 3 \times 5 \times 7$
$= 945$ mins

Cham rule.

$$M_1 \times d_1 \times T_1 \times W_2 = M_2 \times d_2 \times T_2 \times W_1$$