Campusmonk

$\Rightarrow 1200 = 12 \times 100 = 3 \times 4 \times 10 \times 10$

$= 3 \times 2 \times 2 \times 5 \times 2 \times 5 \times 2$

① → ④ ① ②

$2 \times 3 \times 5$

$T_f = 5 \times 2 \times 3 = 30$

Concept Sheet :

H.C.F

Factors

$12 = \{1, 2, 3, 4, 6, 12\}$ → 6

$2^2 \times 3^1$

$T_f = 3 \times 2 = 6$

[prime factor]

2 3 5

$10 \times 10 = 2 \times 5 \times 2 \times 5$

Example* $100 = 2^2 \times 5^2$

$T_f = 3 \times 3 = 9$ factors

[1, 2, 4, 5, 10, 20, 25, 50, 100]

2	100
	50
↓	

Concept Sheet : L.C.M

H.C.F

4 × 3 = 12 = 1, 2, 3, 4, 6, 12

4 × 4 = 16 = 1, 2, 4, 8, 16

H.C.F = 4 → 4a, 4b

12 — 12, 24, 36, 48, 60, 72, 84 ---

16 — 16, 32, 48, 64, 80, 96 ---

L.C.M = 48

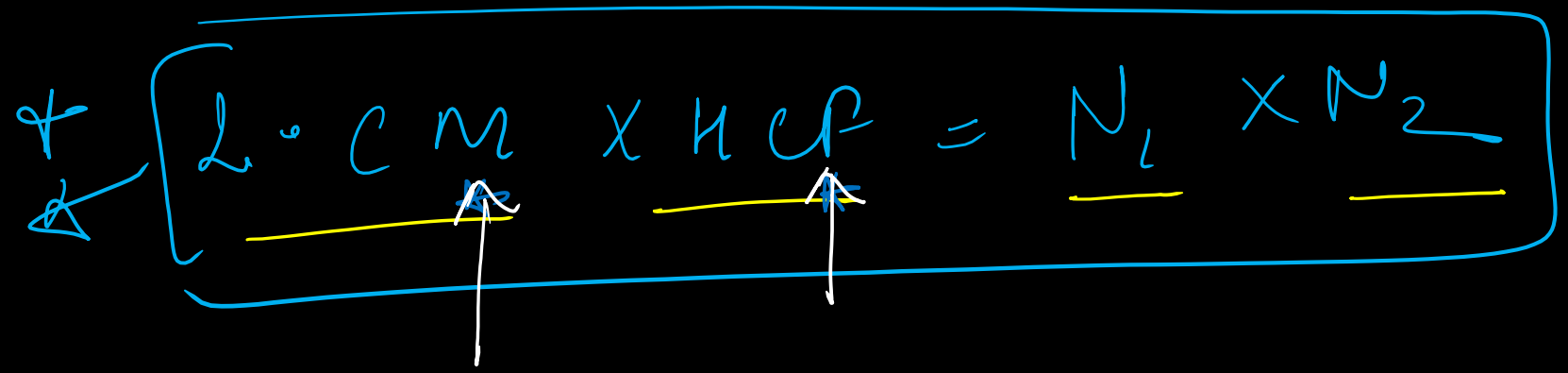
12, 16

Takeaways

$L.C.M \times H.C.F = N_1 \times N_2$

$48 \times 4 = 12 \times 16$

Type 1 :



HCF of two numbers 12906 and 14818 is 478. Then LCM is

(a) 400086 (b) 200043

(c) 600129 (d) 800172

$H.C.F \times L.C.M = N_1 \times N_2$

$478 \times L.C.M = 12906 \times 14818$

$478 \times 6 =$ ⑧ → unit digit

8

The LCM of two numbers is 1920 and their HCF is 16. If one of the number is 128. Find the other number.

TITA

$$1920 \times 16 = 128 \times N_2$$

$$N_2 = 240$$

Ans 240

The LCM of two numbers is 864 and their HCF is 144. If one of the number is 288, then other number is

TITA

Ans : 432

Type :

Type :

10 sec – 10, 20, 30, 40, 50, 60 ——
20 sec – 20, 40, 60, 80, 100 – — —
15 sec – 15, 30, 45, 60, 75 – – –

} Concepts

→ L.C.M = 10, 20, 15 = 60 Ans

Question :

Find the LCM of 0.02, 0.4 and 0.008 ?

I

LCM

$0.02, 0.4, 0.008$

$\frac{0.02}{100}, \frac{0.4}{10}, \frac{0.008}{1000}$

$\frac{1}{50}, \frac{2}{5}, \frac{1}{125}$

$LCM = \frac{LCM}{HCF} = \frac{2}{5} = 0.4$ Ans

II

$0.020, 0.400, 0.008$

$20, 400, 8$

$LCM = \frac{400}{1000} = 0.4$ Ans

Q. Find the LCM of 1.6, 0.04 and 0.005 ?

(a) 3.2 (b) 0.06

(c) 1.06 (d) 1.6

$$\frac{16}{10}, \frac{0.04}{100}, \frac{0.005}{1000}$$

$$\frac{8}{5}, \frac{1}{25}, \frac{1}{200}$$

$$\text{LCM} = \frac{\text{LCM}}{\text{HCF}} = \frac{8}{5} = 1.6$$ Ans

$$1.600, 0.040, 0.005$$

$$1600, 40, 5$$

$$\text{LCM} = \frac{1600}{1000} = 1.6$$ Ans

Q. Find the LCM of 1.2, 0.24 and 6 ?

(a) .006 **(b) 0.06**
(c) 0.36 **(d) 6**

Ans : 6

New approach (2 cm)

Type 2:

#

10, 20 → 20 Ans

10, 30, 20 → 30 × 2 = 60 Ans

8, 12, 16 → 16 × 3 = 48 Ans

There is a track with a length of 120 meters and 2 people, A & B, are running around it at 12 m/min and 20 m/min respectively in the same direction. When will A and B meet at the starting point for the first time?

TITA

The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds, respectively. If they change simultaneously at 7a.m. at, what time will they change simultaneously again?

TITA

7 : 7 : 12 sec Ans

L.C.M = 48, 72, 108 → 12 x 9 x 4

12 x 6

$\frac{36}{5} = 7\frac{1}{5} \times 60$

→ 7 min & 12 sec

$LCM = \frac{12 \times 9 \times 4}{60\ 5}$ min

Six bells commence tolling together at 7:59 am. They toll at intervals of 3,6,9,12,15 second respectively.
How many times do they toll together till 8:16 am ? (Excluding the toll at 7:59 am)

LCM = 3, 6, 9, 12, 15

3 × 2, 9 × 3

$\Rightarrow \frac{3 \times 5 \times 2 \times 3 \times 2}{60}$ min

$\Rightarrow 3$ min

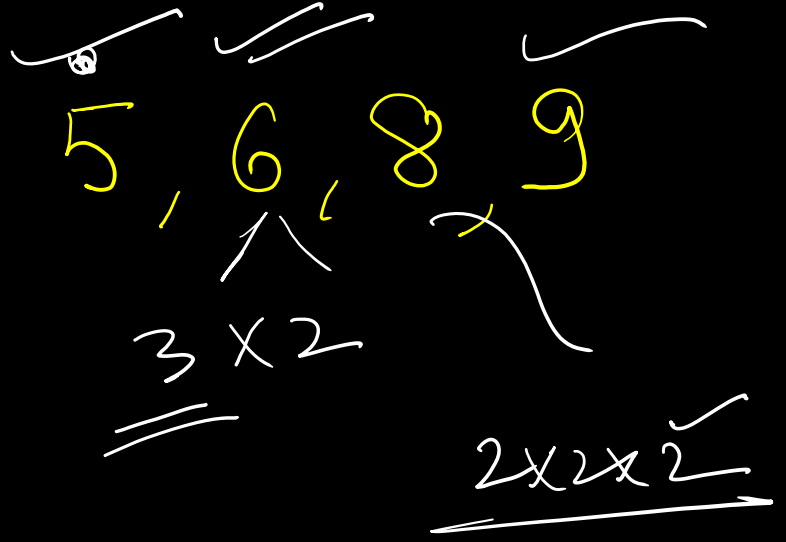
7:59 — 8:16

$\Rightarrow \frac{17}{3} = 5$ Times

Four bells ring at the intervals of 5, 6, 8 and 9 seconds. All the bells ring simultaneously at some time. They will again ring simultaneously after

(a)6 minutes (b) 12 minutes

(c) 18 minutes (d) 24 minutes



$3 \times 3 \times 5 \times 2 \times 4^2$ min

60×2

6 mins

Four bells ring at the intervals of 5, 6, 8 and 9 seconds. All the bells ring simultaneously at some time. They will again ring simultaneously after

(a)6 minutes (b) 12 minutes

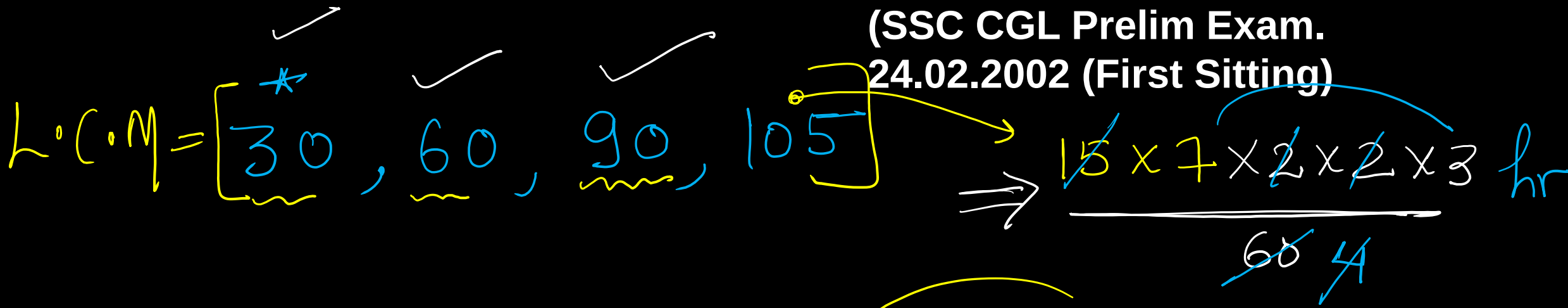
(c) 18 minutes (d) 24 minutes

4 bells ring at intervals of 30 minutes, 1 hour, 1 ½ hour and 1 hour 45 minutes respectively. All the bells ring simultaneously at 12 noon. They will again ring simultaneously at :

(a) 12 mid night (b) 3 a.m.

(c) 6 am (d) 9 a.m.

(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)



5 bells begin to toll together and toll respectively at intervals of 6, 7, 8, 9 and 12 seconds. After how many seconds will they toll together again ?

(a) 72 Sec (b) 612 Sec.

(c) 504 Sec. (d) 318 Sec.

Ans

The traffic lights at three different road crossings change after 24 seconds, 36 seconds and 54 seconds respectively. If they all change simultaneously at 10 : 15 : 00 AM, then at what time will they again change simultaneously ?

(a) 10 : 16 : 54 AM (b) 10 : 18 : 36 AM

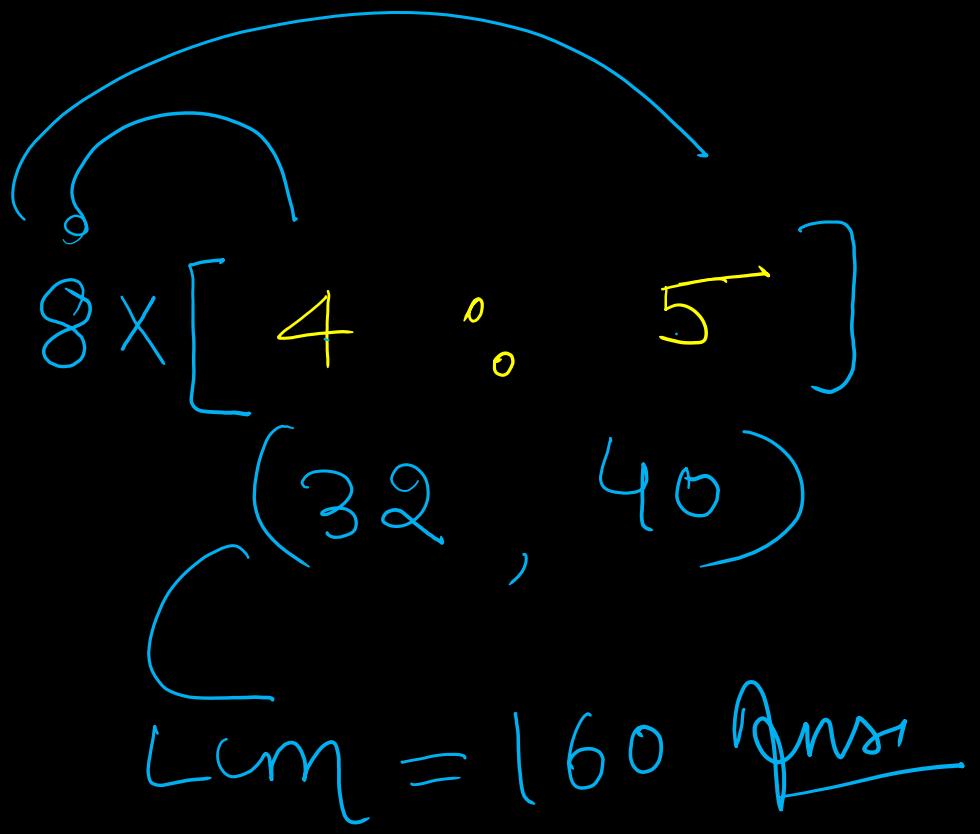
(c) 10 : 17 : 02 AM (d) 10 : 22 : 12 AM

Type 4:

The ratio of two numbers is 4 : 5 and their HCF is 8. Then their LCM is

(a) 130 (b) 140

(c) 150 (d) 160



Three numbers are ratio 2 : 3 : 4 and their HCF is 12. The LCM of the numbers is

(a) 144 (b) 132

(c) 96 (d) 72

$12 [2 : 3 : 4]$

HCF = 12

Number = 24, 36, 48

LCM = 144 Ans

The ratio of two numbers is 3 : 4 and their HCF is 5. Their LCM is :

(a) 10 (b) 60

(c) 15 (d) 12

Imp.

Eg: 4, 7

Co-prime No = 4, 7 → 1

[No Common factor]

Eg: 5, 7

8, 11

4, 9

Other than 1.

The product of two numbers is 2028 and their HCF is 13. The number of such pairs is

(a) 1 (b) 2

(c) 3 (d) 4

$13a \times 13b = 2028$

$a \times b = 156$ 12

$a \times b = 12$

1 × 12

2 × 6 → X = H.C.F will change

3 × 4

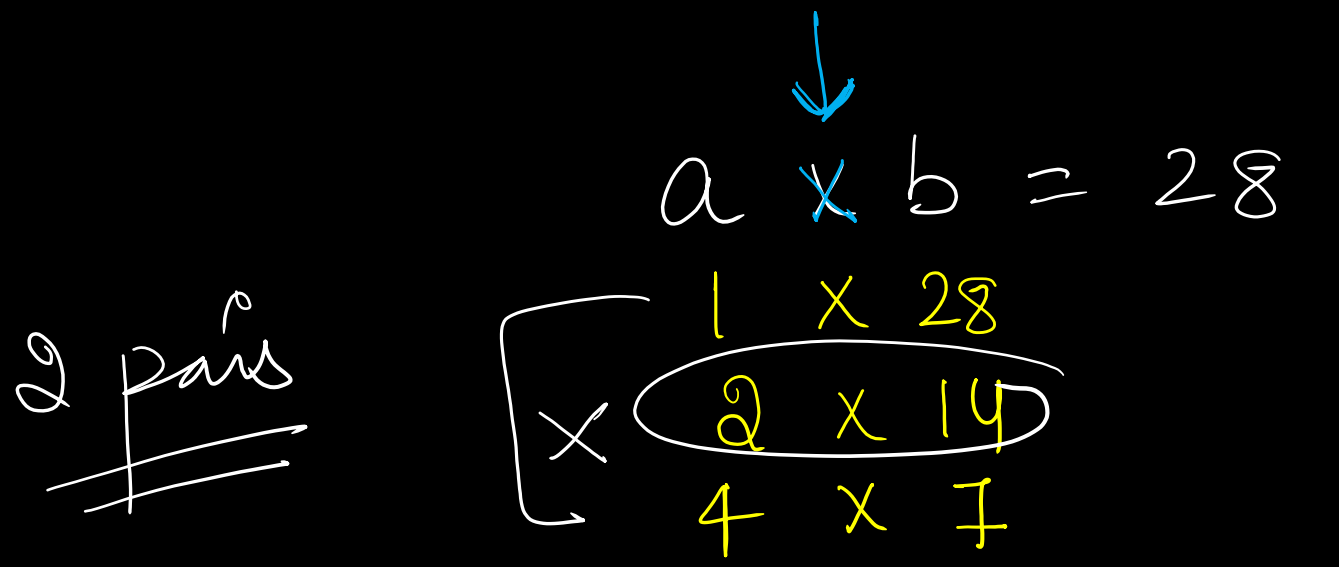
Co-prime

2 pairs

The HCF and product of two numbers are 15 and 6300 respectively. The number of possible pairs of the numbers is

(a) 4 (b) 3

(c) 2 (d) 1



The Product of two numbers is 2160 and their HCF is 12. Number of such possible pairs is

(a) 1 (b) 2

(c) 3 (d) 4

The Product of two numbers is 6760 and their HCF is 13. Number of such possible pairs is

(a) 1 (b) 2

(c) 3 (d) 4