UDAAN

2026

REAL NUMBERS

MATHS   LECTURE-4

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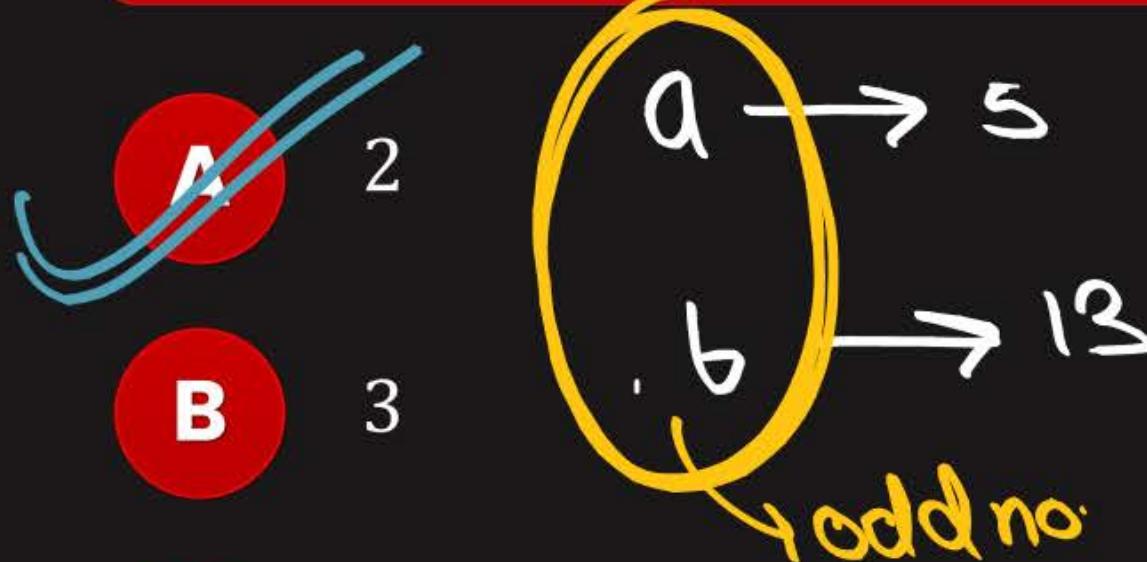
Topics *to be covered*
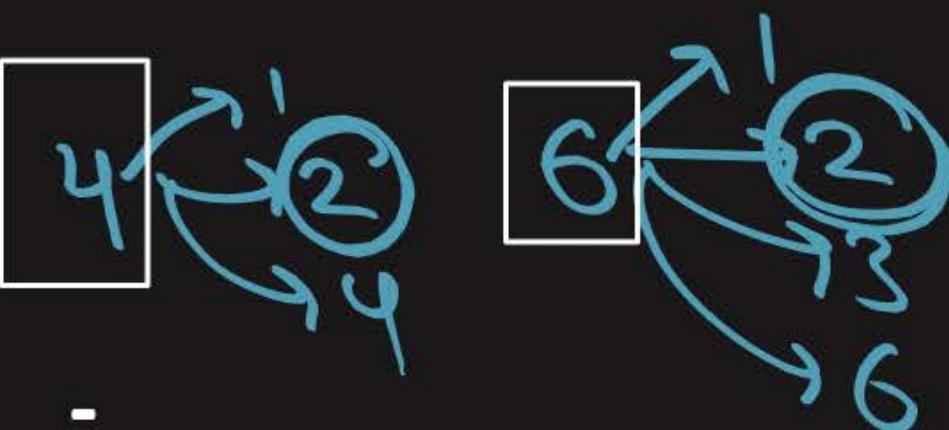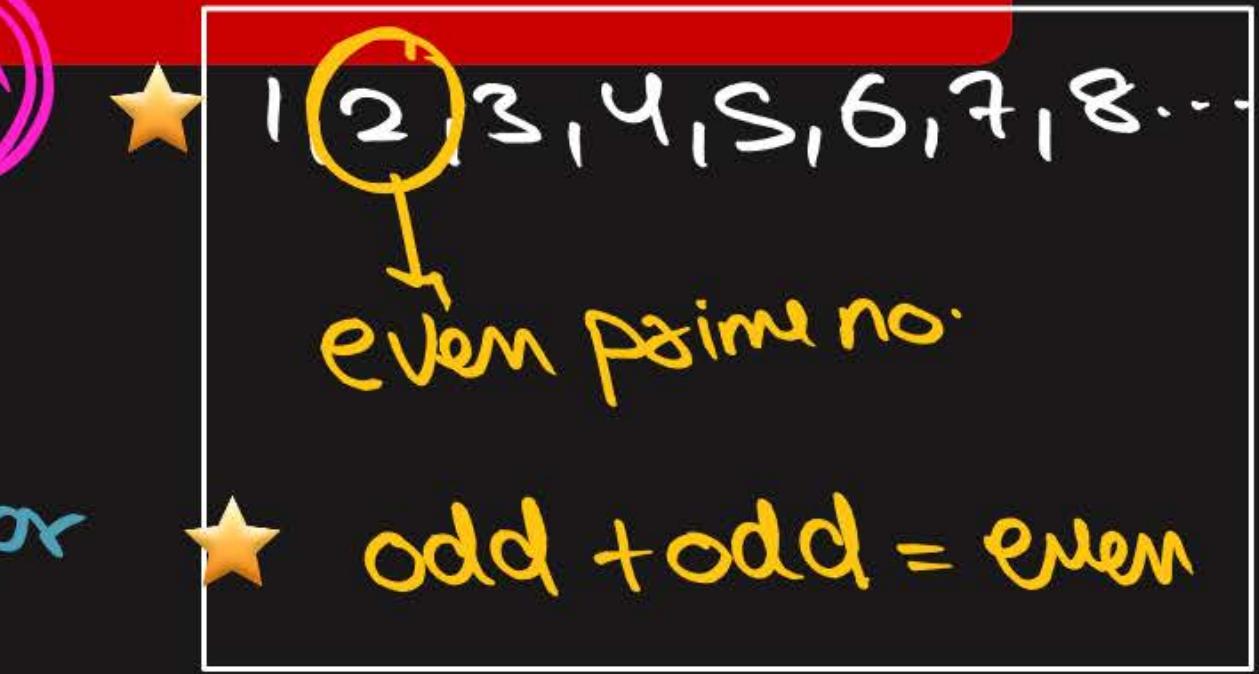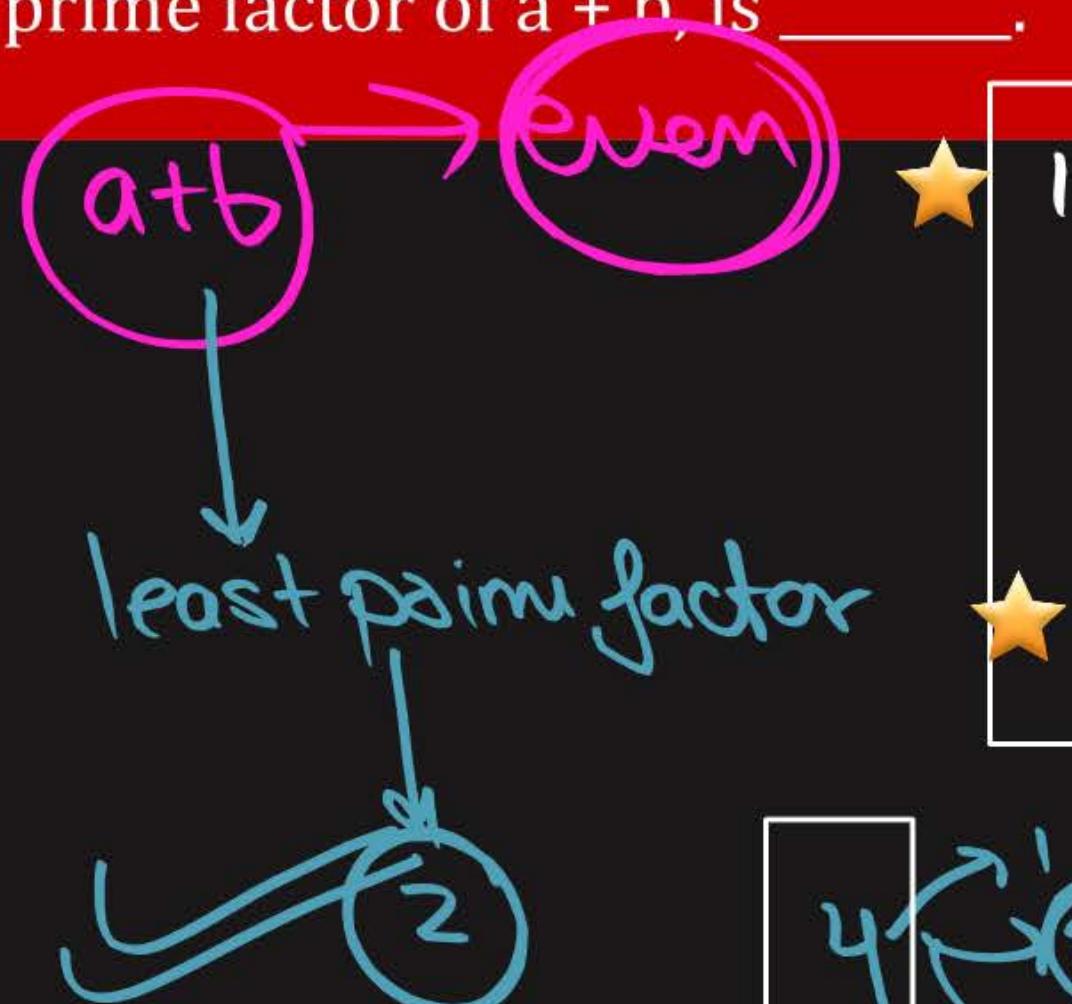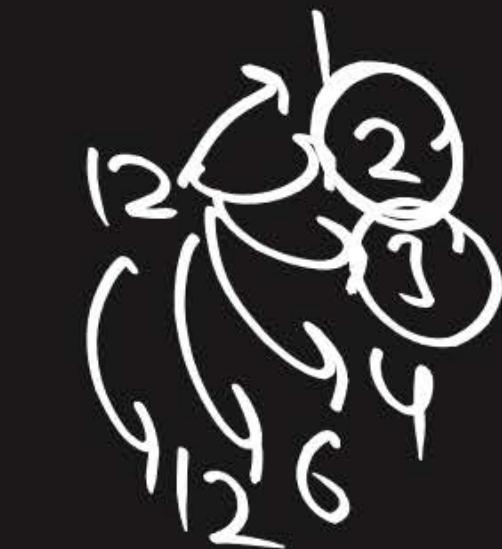
A Word Problems on HCF and LCM

B. Kuch Or Badhiya Sawaal

#Q. If the least prime factors of two positive integers a and b are 5 and 13 respectively, then the least prime factor of a + b, is _____.

A. 2

B. 3

C. 5

D. 1

$a \rightarrow 5$

$b \rightarrow 13$

↳ odd no.

a+b → even

least prime factor

2

$1, 2, 3, 4, 5, 6, 7, 8 \ldots$

even prime no.

odd + odd = even

$12 \quad 2$
1
4
$12 \quad 6$

$4 \rightarrow 2 \rightarrow 1$
$\rightarrow 4$

$6 \rightarrow 2 \rightarrow 1$
$\rightarrow 3$
$\rightarrow 6$

$2 \times 5 \times 5 \times 5 \times 3 \times 3 \times 7 \times 11$

#Q. Teaching Mathematics through activities is a powerful approach that enhances student's understanding and engagement. Keeping this a mind Ms. Mukta planned a prime number game for class 5 students. She announces the number 2 in her class and asked the first sutdnet to multiply it by a prime number and then pass it to second student. Second student also multiplied it by a prime number and passed it to third student. In this way by multiplying to a prime number, the last student got 173250.

Now, Mukta asked some questions as given below to the students:

(i) What is the least prime number used by students? ③

(ii) (a) How many students are in the class? ⑦

OR

(b) What is the highest prime number used by students? ⑪

(iii) Which prime number has been used maximum times? ⑤

$$
\begin{array}{r|r}
2 & 173250 \\
\hline
5 & 86625 \\
5 & 17325 \\
5 & 3465 \\
3 & 693 \\
3 & 231 \\
7 & 77 \\
11 & 11 \\
\end{array}
$$

#Q. If sum of two numbers is 1215 and their HCF is 81 the possible number of pairs of such numbers are

Next class

A 2

B 3

C 4

D 5

#Q. Find the number of possible pairs of the product of two numbers and HCF are 4500 and 15 respectively.

Next class

A 1

B 2

C 3

D 4

#Q. The sum of two positive numbers is 240 and their HCF is 15. Find the number of pairs of numbers satisfying the given condition.

Next class

Word Problems of HCF and LCM

➢ Read the question carefully, very carefully.

➢ Abh ye judge kro ki aapka answer given data se bada hai ya chota aayega.

Chota ⟶ Factor ⟶ HCF

Bada ⟶ Multiple ⟶ LCM

➢ HCF of students, Students hi aayega.

So girls.

girls.

Go girls.

#Q. There is a circular path around a sports field. Priya takes 18 minutes to drive one round of the field, while Ravish takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?
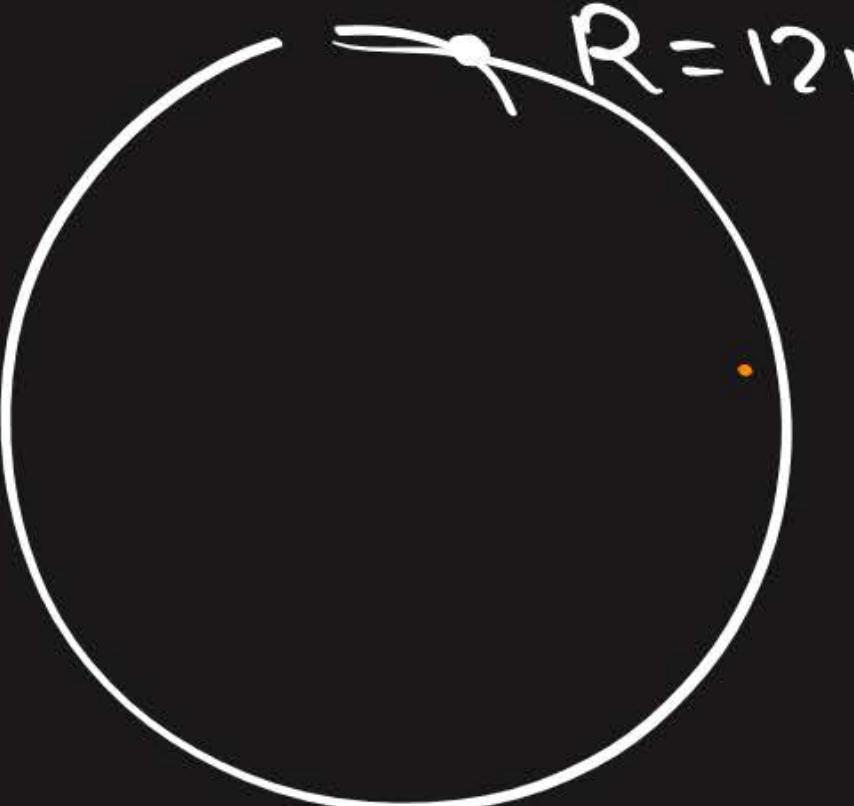
$P = 18 \, min$

$R = 12 \, min$

$18 = 2^1 \times 3^2$

$12 = 2^2 \times 3^1$

$LCM(18 \& 12) = 2^2 \times 3^2 = \boxed{36 \, minutes.}$

#Q. In a school there are two sections - section A and section B of classX. There are 32 students in section A and 36 students in section B. Determine the minimum number of books required for their class library so that they can be distributed equally among students of section A or section B.

A. 30

B. 32

C. 36

D. NOTA

$A = 32's$
$B = 36's$

$32 = 2^5 \times 3^0$
$36 = 2^2 \times 3^2$

$LCM = 2^5 \times 3^2 = 32 \times 9 = \boxed{288}$

2	32
2	16
2	8
2	4
2	2

2	36
2	18
3	9
3	3
	1
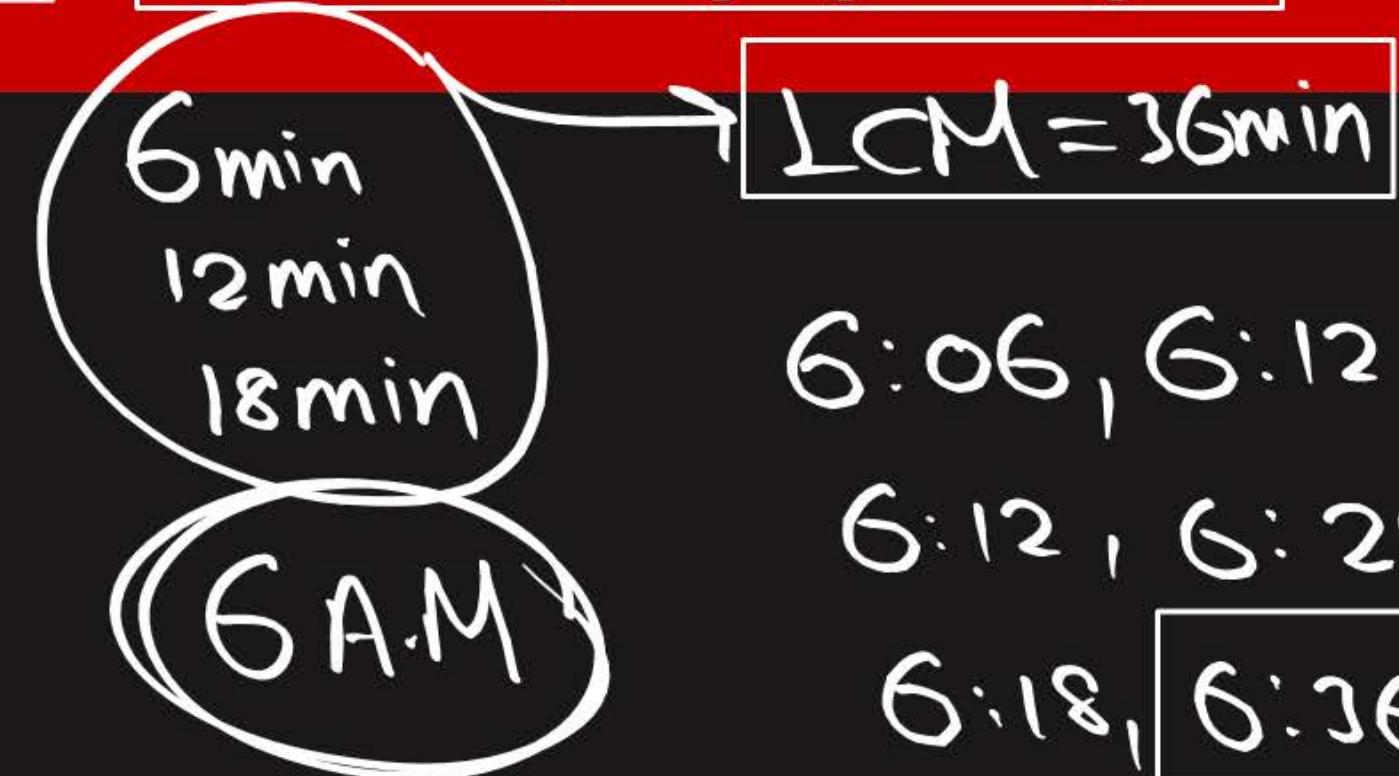
288 books Ans//

#Q. Three bells ring at intervals of 6, 12 and 18 minutes. If all the three bells rang at 6 A.M. when will they ring together again?

A 6 : 18 AM

B 6 : 18 PM

C 6 : 36 AM

D 6 : 30 PM

6 min
12 min
18 min

6 A.M

$LCM = 36\,min$

6:06, 6:12, 6:18, 6:24, 6:30, 6:36 ------

6:12, 6:24, 6:36 ------

6:18, 6:36 ------

#Q. Four bells ring at an interval of 4, 7, 12 and 14 seconds respectively. If the four bells begin to ring at 12 O'clock when will this next ring together and how often will they do so in the next 14 minutes.

2	4, 7, 12, 14
7	2, 7, 6, 7
2	2, 1, 6, 1
3	1, 1, 3, 1
	1, 1, 1, 1

LCM = 84 seconds

$60 \, s + 24 \, s$

$1 \, min + 24 \, s$

12:01:24

min $\longrightarrow$ sec.

1 min = 60 seconds.

14 min = (14 × 60) seconds

14 min = 840 seconds
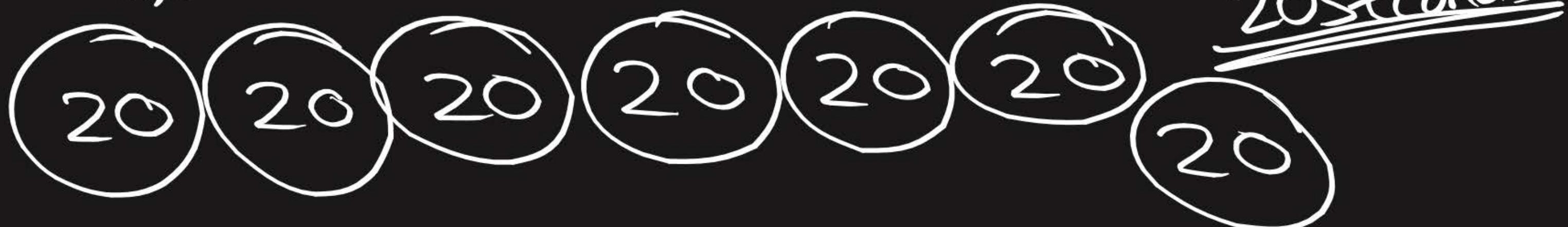
no. of times they will ring together $= \dfrac{840}{84} = 10 \text{ times}$

Ans.

140 seconds

$$\frac{140}{20} = 7$$

20 seconds

20 20 20 20 20 20

20

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

#GiPK

#Q. On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm respectively. What is the minimum distance each should walk so that each can cover the same distance and complete steps?

LCM

#Q. A seminar is being conducted by an education orgainisation, where the participants will be educators of different subjects. The numbers of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively.

$H = 60 \, P$

$E = 84 \, P$

$M = 108 \, P$

(i) In each room the same number of participants are to be seated and all of them being in the same subject, hence the maximum number of participants that can be accomodated in each room is

A. 14   B. 12   C. 16   D. 18

(ii) The minimum number of rooms required during the event, is

A. 21   B. 8   C. 7   D. 5

$$\begin{array}{c|c} 2 & 60 \\ \hline 2 & 30 \\ \hline 5 & 15 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \qquad \begin{array}{c|c} 2 & 84 \\ \hline 2 & 42 \\ \hline 7 & 21 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \qquad \begin{array}{c|c} 2 & 108 \\ \hline 2 & 54 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$60 = 2^2 \times 5^1 \times 3^1 \times 7^0$$
$$84 = 2^2 \times 7^1 \times 3^1 \times 5^0$$
$$108 = 2^2 \times 3^3 \times 5^0 \times 7^0$$

$$HCF = 2^2 \times 3^1 \times 5^0 \times 7^0$$
$$= \boxed{12 \text{ Participants}}$$

$$H = \frac{60}{12} = \boxed{5} \text{ Rooms.}$$

$$E = \frac{84}{12} = \boxed{7} \text{ Rooms.}$$

$$M = \frac{108}{12} = \boxed{9} \text{ Rooms.}$$

$$\boxed{21 \text{ Rooms}}$$

#Q. Three sets of Science, History and Drawing books have to be stacked in such a way that all the books are stored topic wise and the height of each stack is the same. The number of Science books is 192, the number of History books is 480 and the number of Drawing books is 672. Assuming that the books are of the same thickness, determine the number of stacks of Science, History and Drawing books.

#Gpk

#Q. A furit vendor has 990 apples and 945 organs. He packs them into basket. Each basket contains only one of the two fruits but in equal number. Find the number of fruits to be put in each basket in order to have minimum number of basket.

#Gpk

#Q. The length, breadth and height of a room are 8 m 50 cm, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly.

A   20 cm

B   5 cm

C   1 cm

D   2 cm

#GPh

8m 50cm.

800cm + 50cm

= 850cm

1m = 100cm

2m = (2×100)cm

8m = (8×100)cm