

## LCM Questions

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### MCQ Question 1

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The HCF and LCM of two numbers are 24 and 168 and the numbers are in the ratio 1 : 7. Find the greater of the two numbers.

1. 168
2. 144
3. 108
4. 72

**Answer** (Detailed Solution Below)

Option 1 : 168



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### LCM MCQ Question 1 Detailed Solution

**Given:**

$$\text{HCF} = 24$$

$$\text{LCM} = 168$$

$$\text{Ratio of numbers} = 1 : 7.$$

**Formula:**

$$\text{Product of numbers} = \text{LCM} \times \text{HCF}$$

**Calculation:**

Let numbers be  $x$  and  $7x$ .

$$x \times 7x = 24 \times 168$$

$$\Rightarrow x^2 = 24 \times 24$$

$$\Rightarrow x = 24$$

$$\therefore \text{Larger number} = 7x = 24 \times 7 = 168.$$



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## MCQ Question 2

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What least number must be subtracted from 2963 so that the resulting number when divided by 9, 10 and 15, the remainder in each case is 5?

1. 41

2. 78

3. 82

4. None of the above

## Answer (Detailed Solution Below)

Option 2 : 78

## LCM MCQ Question 2 Detailed Solution

Given:

Number = 2963

Concept used:

Lowest Common Multiple

Calculation:

 $\text{LCM of } (9, 10, 15) = 3 \times 3 \times 10$  $\Rightarrow 90$  $2963/90, \text{ remainder} = 83$

∴ The least number that must be subtracted from 2963 which gives remainder 5 when divided by 9, 10 and 15:


$$\Rightarrow 83 - 5 = 78$$


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### MCQ Question 3

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Find the sum of the numbers between 400 and 600 such that when they are divided by 6, 12 and 16, there will be no remainder.

1. 2620

2. 2016

3. 2026

4. 2610

**Answer** (Detailed Solution Below)

Option 2 : 2016

### LCM MCQ Question 3 Detailed Solution

**Given:**

We need to find the sum of numbers in the range of 400 - 600 such that they are divisible by each 6, 12 and 16.

**Concept:**

LCM (Lowest Common Multiple)



**Calculation:**

$$\text{LCM}(6, 12, 16) = 48$$

The required numbers will be in the form of  $48k$ , where  $k$  is a natural number.

$$\text{For } k = 9, 48k = 48 \times 9 = 432$$

$$\text{For } k = 10, 48k = 48 \times 10 = 480$$

$$\text{For } k = 11, 48k = 48 \times 11 = 528$$

$$\text{For } k = 12, 48k = 48 \times 12 = 576$$


$\therefore$  The sum of these 4 numbers that is, 432, 480, 528, and 576 is 2016.


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#### MCQ Question 4

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**What is the largest possible 5-digit number which is exactly divisible by 30, 45 and 54?**

1. 99990

2. 99840

3. 99800

4. 99900

**Answer** (Detailed Solution Below)

Option 4 : 99900

**LCM MCQ Question 4 Detailed Solution**

**GIVEN:**

Largest possible 5-digit number which is exactly divisible by 30, 45 and 54.

**CONCEPT:**

LCM: denotes the least common factor or multiple of any two or more given integers.

**CALCULATION:**

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

$$45 = 3 \times 3 \times 5$$

$$54 = 2 \times 3 \times 3 \times 3$$

$$\text{LCM of (30, 45 and 54)} = 2 \times 3 \times 3 \times 3 \times 5 = 270$$

$$\text{Largest number of 5 digit} = 99999$$

Hence,

$$\text{Required number} = 99999 - \text{Remainder of } (99999 \div 270)$$

$$= 99999 - 99$$


$$= 99900$$


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**MCQ Question 5**[View this Question Online >](#)

Two numbers are in the ratio 3 : 4, their LCM is 84. Find the greater number of the two numbers.

1. 21

2. 24

3. 28

4. 84

**Answer** (Detailed Solution Below)

Option 3 : 28

### LCM MCQ Question 5 Detailed Solution

**Given:**

Ratio of two numbers = 3 : 4

LCM of these two numbers = 84

**Calculation:**

Let the number be  $3x$  and  $4x$

LCM of  $3x$  and  $4x = 12x$

According to the question,

$$12x = 84$$

$$\Rightarrow x = 7$$

Greater number =  $4x$

$$\Rightarrow 4 \times 7$$

$$\Rightarrow 28$$

$\therefore$  The greater number of two numbers is 28



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### MCQ Question 6

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If the ratio of the number is 3 : 5 and their HCF is 25. Then, what is the LCM of these two numbers?

numbers?

1. 275

2. 225

3. 425

4. 375

**Answer** (Detailed Solution Below)

Option 4 : 375

#### LCM MCQ Question 6 Detailed Solution

##### GIVEN:

The ratio of two numbers = 3 : 5

HCF of two numbers = 25

##### CONCEPT:

Product of two numbers = LCM  $\times$  HCF

##### CALCULATION:

Suppose two numbers are  $3x$  and  $5x$ , respectively.

HCF = 25

$\therefore$  First number =  $3x = 3(25) = 75$

Second number =  $5x = 5(25) = 125$

$\Rightarrow 75 \times 125 = 25 \times \text{LCM}$

$\Rightarrow \text{LCM} = 3 \times 125$

$\Rightarrow \text{LCM} = 375$

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### MCQ Question 7

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Four bells ringing together and ring at an interval of 12 sec, 15 sec, 20 sec, and 30 sec respectively. How many times will they ring together in 8 hours?

1. 481

2. 480

3. 482

4. 483

**Answer** (Detailed Solution Below)

Option 1 : 481

### LCM MCQ Question 7 Detailed Solution

**Given:**

Four bells ringing timing is 12 sec, 15 sec, 20 sec, 30 sec

**Calculation:**

Four bells ringing timing is 12 sec, 15 sec, 20 sec, 30 sec

Now we have to take LCM of time interval

$\Rightarrow$  LCM of (12, 15, 20, 30) = 60

Total seconds in 8 hours =  $8 \times 3600 = 28800$

Number of times bell rings =  $28800/60$

$\Rightarrow$  Number of times bell rings = 480

If four bells ring together in starting

$\Rightarrow 480 + 1$

∴ The bell ringing 481 times in 8 hours.

### **Mistake Points**

The bells start tolling together, the first toll also needs to be counted, that is the number of times of tolling since the first time.

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#### MCQ Question 8

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The size of an iron block is  $15\text{ cm} \times 10\text{ cm} \times 20\text{ cm}$ . How many such blocks will be needed for the construction of a solid iron cube of minimum size?

1. 90

2. 72

3. 120

4. 60

**Answer** (Detailed Solution Below)

Option 2 : 72

#### LCM MCQ Question 8 Detailed Solution

**GIVEN:**

The size of an iron block is  $15\text{ cm} \times 10\text{ cm} \times 20\text{ cm}$ .

**CONCEPT:**

LCM: denotes the least common factor or multiple of any two or more given integers.

### CALCULATION:

Side of smallest cube = LCM (15, 10, 20) = 60 cm

$\therefore$  Required number of blocks =  $(60 \times 60 \times 60)/(15 \times 10 \times 20) = 72$

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### MCQ Question 9

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If the ratio of two numbers is in the ratio 4 : 9 and their LCM is 720, then find the sum of both the numbers?

1. 260

2. 240

3. 180

4. 390

**Answer** (Detailed Solution Below)

Option 1 : 260

### LCM MCQ Question 9 Detailed Solution

**Given:**

Ratio of numbers = 4 : 9

LCM of the numbers = 720

**Calculation:**



Let the numbers be  $4a$  and  $9a$ .

$\therefore$  Prime factors of  $4a = a \times 2 \times 2$

Prime factors of  $9a = a \times 3 \times 3$

$\therefore$  LCM of  $4a$  and  $9a = a \times 2 \times 2 \times 3 \times 3$

$= 36 \times a$

$\therefore$  LCM of  $4a$  and  $9a = 720$  (Given)

$\therefore 36 \times a = 720$

$\Rightarrow a = 720/36$

$\Rightarrow a = 20$

$\therefore$  Numbers are  $4a = 4 \times 20 = 80$

$9a = 9 \times 20 = 180$

$\therefore$  Sum of numbers  $= 180 + 80$

$= 260$




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### MCQ Question 10

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The LCM and HCF of two numbers are 108 and 18 respectively. If one of the numbers is 36, find the other number.

1. 22

2. 54

3. 42

4. 12





**Answer** (Detailed Solution Below)

Option 2 : 54

#### LCM MCQ Question 10 Detailed Solution

**Given:**

$$\text{LCM} = 108$$

$$\text{HCF} = 18$$

one of the numbers = 36.

**Concept Used:**

$$(a \text{ and } b) = \text{HCF of } (a, b) \times \text{LCM of } (a, b)$$

**Calculation:**

Let the other number be x.

$$36 \times x = 108 \times 18$$

$$\Rightarrow x = 54$$

**$\therefore$  The other number is 54**