

**BANK PO**

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# **QUANTITATIVE APTITUDE**

**UPSC PATHSHALA**

# 1

## HCF and LCM

**What will be covered in this chapter ?**

- Definition of Multiples and Factor, Co Prime Numbers
- Highest Common Factor
- Methods of finding Highest Common Factor
- Finding HCF of more than two numbers
- Least Common Multiple
- Methods of finding Least common Multiple
- Finding HCF and LCM of Fractions
- Finding HCF and LCM of Decimal Fractions
- Finding Product of two numbers from HCF and LCM
- Comparing fractions from LCM

# 1. DEFINITION

## **Factor**

If a number  $x$  divides another number  $y$  exactly, then we can say  $x$  is the factor of  $y$ .

Example: Factors of 12 are 1, 2, 3, 4, 6, and 12.

## **Multiples**

On the other hand, multiple of a number is its table itself.

Example: Multiples of 4 are 4, 8, 12, 16, .....

## **Co-primes**

Co-primes are those numbers that have only 1 as their common factor. There is no other common factor between them

Example: 4 and 7, 14 and 15

Consider yourself as the leader of a group who has to distribute packets of chips to your group members. Now you have 501 packets of biscuits and 410 packets of chips. You, being a fair leader, want each group member to get the same number of packets of biscuits and chips, else what if a fight breaks out among the group members. But you see that the number of packets of biscuits and chips is different, so how many people in the group can you ensure that they get the same number? You will have to use a simple maths formula, that of calculating the Highest Common Factor of 501 and 410.

## 2. Highest Common Factor

**Highest Common Factor (H.C.F.) or Greatest Common Divisor (G.C.D.) or Greatest Common Measure**

The H.C.F. of two or more than two numbers is the greatest number that divides each of the numbers exactly.

### 3. Methods of calculating the H.C.F. of numbers

- **Factorization Method:** In this method, all the given numbers are expressed as the product of their prime factors & then calculating the product of its least powers of common prime factors will give H.C.F.

#### Example :

Find HCF of 36 and 84

Step 1

Expressing 36 as product of prime factors -

$$36 = 2^2 \times 3^2$$

Expressing 84 as product of prime factors-

$$84 = 2^2 \times 3 \times 7$$

Step 2

HCF = Product of least powers of common prime factors

$$\text{HCF} = 2^2 \times 3 = 12$$

- **Division Method:** Divide the larger by the smaller one then; divide the divisor by the remainder. Repeat this process of dividing the preceding number by the remainder till zero is obtained as remainder. The last divisor is our H.C.F.

### 4. Finding HCF of two or more numbers

To find HCF of more than two numbers, first, find the HCF of two numbers. Then find HCF of the first two numbers and the third number. If HCF of three numbers 'a', 'b', and 'c' has to be found out, first find HCF of 'a' and 'b', let us suppose the HCF of 'a' and 'b' is 'd', the final HCF will be HCF of 'd' and 'c'.

**Example :**

Find HCF of 513, 1134, and 1215

**Step 1**

Divide large number by the smaller one-

$$\begin{array}{r} 1134 \overline{)1215} \quad (1 \\ \underline{1134} \phantom{00} \\ 81 \phantom{00} \end{array}$$
$$\begin{array}{r} 81 \overline{)1134} \quad (14 \\ \underline{81} \phantom{00} \\ 324 \phantom{00} \\ \underline{324} \phantom{00} \\ X \phantom{00} \end{array}$$

So HCF of 1134 and 1215 is 81

**Step 2**

Now find the HCF of 81 and 513

$$\begin{array}{r} 81 \overline{)513} \quad (6 \\ \underline{486} \phantom{00} \\ 27 \phantom{00} \end{array}$$
$$\begin{array}{r} 27 \overline{)81} \quad (3 \\ \underline{81} \phantom{00} \\ X \phantom{00} \end{array}$$

HCF of 513, 1134 and 1215 is 27 which is the last divisor.

Remember the racing competitions in school when there was a competition on who is the fastest runner ? Sometimes we used to compete with our friends also and make it a game. Now imagine you and your two other friends, let's name them 'A' and 'B' for reference, start running from the school canteen to the playground and back to the canteen. You completed this round in 3 minutes while your friend A took 4 minutes and B took 2 minutes. Now you all took different times to complete the round, but you all being friends would meet as well after the rounds, so after how much time will you meet at the point where you started i.e canteen ? The answer to this question is simple, you have to calculate the 'Least Common Factor' of 3, 4, and 2 !

## 5. Least Common Multiple (L.C.M.)

L.C.M is the least number which is exactly divisible by each one of the given numbers is called their L.C.M.

## 6. Methods of calculating the L.C.M. of numbers

- **Factorization Method:** Expressing each one of the given numbers into the product of its prime factors. Then, a product of the highest powers of all the factors gives L.C.M.

### Example :

Find LCM of 24, 36 and 40

#### Step 1

Express each number as a product of its prime factors

$$24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$$

$$40 = 2 \times 2 \times 2 \times 5 = 2^3 \times 5$$

#### Step 2

Product of its highest powers

$$\text{LCM} = 2^3 \times 3^2 \times 5 = 360$$

- **Division Method (short-cut):** Arrange the given numbers in a row in any order & divide them by the smallest number which divides at least two of the given numbers exactly and carries forward the numbers which are not divisible. Repeat the same process till no number is further divisible except no 1. The product of the divisors and the undivided numbers is the L.C.M. of the given numbers.

**Example :**

Find LCM of 16, 24, 36 and 54

**Step 1**

2	16	24	36	54
2	8	12	18	27
2	4	6	9	27
3	2	3	9	27
3	2	1	3	9
	2	1	1	3

**Step 2**

LCM = Product of divisors and undivided numbers  
 $= 2 \times 2 \times 2 \times 3 \times 3 \times 2 \times 3$   
 $= 432$

**7. H.C.F. and L.C.M. of Fractions**

- H.C.F. = H.C.F. of Numerators/L.C.M. of Denominators
- L.C.M. = L.C.M. of Numerators/H.C.F. of Denominators

**Example :**

Find HCF and LCM of the following fractions

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

HCF of fractions = HCF of 2,8,16,10 / LCM of 3,9,81,27  
 $= \frac{2}{81}$

LCM of fractions = LCM of 2,8,16,10 / HCF of 3,9,81,27  
 $= \frac{80}{3}$

## 8. H.C.F. and L.C.M. of Decimal numbers

H.C.F and L.C.M of decimal numbers can be calculated by converting the decimal numbers into fractions & then following the same approach of finding the H.C.F and L.C.M of fractions as given above.

### Example :

Find HCF and LCM of 0.63, 1.05 and 2.1

#### Step 1

Convert decimals into fractions

$63/100$ ,  $105/100$ ,  $21/10$

#### Step 2

Finding HCF of fractions = HCF of numerators/ LCM of denominators

= HCF of 63, 105, 21/ LCM of 100, 100,10

=  $21/100$

= 0.21

Finding LCM of fractions = LCM of numerators / HCF of denominators

= LCM of 63, 105, 21 / HCF of 100, 100,10

=  $630/100$

= .63

## 9. Product of two numbers from HCF and LCM

Product of two numbers = Product of HCF and LCM

### Example :

The product of two numbers is 1320 and their HCF is 6, find the LCM.

$$1320 = 6 \times \text{LCM}$$

$$1320 / 6 = \text{LCM}$$

$$\text{LCM} = 220$$

## 10. Comparison of fractions

Find the LCM of the denominators of the given fractions. Multiply both numerator and denominator by the same number in order to convert the denominator into an LCM number. Compare the numerators, the fraction with the greatest numerator is the greatest fraction.

### Example :

Which of the following fraction is the greatest ?

$17/18$ ,  $31/36$ ,  $43/45$ ,  $59/60$

#### Step 1

LCM of denominators = LCM of 18, 36, 45, 60  
= 180

#### Step 2

Multiply both numerator and denominator by the same number to convert the denominator into LCM.

$$17/18 = 17 \times 10 / 18 \times 10 = 170/180$$

$$31/36 = 31 \times 5 / 36 \times 5 = 155/180$$

$$43/45 = 43 \times 4 / 45 \times 4 = 172/180$$

$$59/60 = 59 \times 3 / 60 \times 3 = 177/180$$

#### Step 3

Find the greatest numerator amongst the fractions

Thus since 177 is the greatest numerator,  $59/60$  is the greatest fraction.

## Problems

### Type 1

Reducing a fraction to lowest terms

**Q1.** Reduce 18/27 to lowest term

**Ans.** Step 1 - Find the HCF of 18,27

HCF of 18 and 27 is 9

Step 2- Divide both the numerator and denominator by HCF

$$18/27 = 18/9$$

$$\begin{array}{r} \text{---} \\ 27/9 \\ = 2/3 \end{array}$$

**Pitfalls** 

It has to be remembered that whenever a fraction has to be reduced to the lowest terms, the 'HCF' of the numerator and denominator has to be found out and not the 'LCM'

After finding the HCF, both 'numerator' and 'denominator' have to be 'divided' with the HCF to get the fraction in lowest terms.

### Type 2

Finding the greatest possible length

**Q2.** Find the greatest possible length which can be used to measure exactly the lengths of 126 cm, 162 cm, and 198 cm.

**Ans.** Step 1

Find the HCF of 126, 162 and 189 .

HCF = 18 cm

**Pitfalls** 

The greatest possible length is always the HCF and not the LCM.

If length is given as a combination of different units eg 7 m 35 cm, then convert into one unit, 735 cm. Calculating HCF when lengths are given in different units will give the wrong answer.

### Type 3

Finding the greatest number

**Q3.** Find the greatest number which on dividing 1657 and 2037 leaves remainder 6 and 5 respectively.

**Ans.** Step 1

Subtract the remainder from the respective number

$$1657 - 6 = 1651$$

$$2037 - 5 = 2032$$

Step 2

Find the HCF of the new numbers so obtained after subtraction if remainder

HCF of 1651 and 2032

Required number = 127

**Pitfalls**



The remainder has to be subtracted from the numbers given before finding the HCF.

### Type 4

Finding the largest number when the remainder is same

**Q4.** Find the largest number which divides 62, 132, and 237 when the same remainder is left in each case.

**Ans.** Step 1

Subtract three numbers from each other

$$132 - 62 = 70$$

$$237 - 62 = 175$$

$$237 - 132 = 105$$

Step 2

Find the HCF of the new numbers so obtained

HCF of 175, 105, 70 = 35

Required number is 35

**Pitfalls** 

When no specific remainder is given but mentioned that remainders left are the same, then the numbers have to be subtracted from each other. No remainder has to be assumed in this case.

### Type 5

Finding the least number exactly divisible by given numbers

**Q5.** Find the least number exactly divisible by 15, 20, 24, 32, 36

**Ans.** Step 1

Find the LCM of 15,20,24,32,36

LCM = 1440

Required number is 1440

**Pitfalls** 

The least number exactly divisible is always the LCM , it should not be confused with calculating HCF.

### Type 6

Finding the least number when the remainder is given

**Q6.** Find the least number which when divided by 6,7,8 ,9, and 12 leaves the same remainder 1 in each case.

**Ans.** Step1

Find the LCM of 6,7,8,9, 12

LCM 6,7,8,9 12 = 504

Step 2

Add the remainder to the LCM so obtained

Required number =  $504 + 1 = 505$

**Pitfalls** 

It should be remembered that the remainder given has to be added to the LCM, only LCM is not the answer.

## Type 7

Finding the largest and smallest number of a particular number of digits

**Q7.** Find the largest number of 4 digits exactly divisible by 12,15,18,27.

**Ans.** Step 1

Find the largest 4 digit number

It is 9999

Step 2

Find LCM of 12, 15, 18 27

LCM of 12,15,18, 27 = 540

Step 3

Subtract LCM so obtained from 9999

$9999 - 540 = 9720$

Required number is 9720

**Pitfalls** 

LCM has to be 'subtracted' when the largest number has to be found out.

**Q8.** Find the smallest number of five digits exactly divisible by 16,24,36,54

**Ans.** Step 1

Find the smallest five digit number

It is 10000

Step 2

Find LCM of 16,24,36,54

LCM of 16,24,36,54 = 432

Step 3

Divide 10000 by 432 and find the remainder

Remainder = 64

#### Step 4

Add the difference of LCM and remainder in 10000

$$\text{Required number} = 10000 + (432 - 64) = 10368$$

#### **Pitfalls**

When the smallest number has to be found the 'Difference' of LCM and remainder has to be 'added'.

### **Type 8**

Finding the least number when remainders are given

**Q 9.** Find the least numbers which when divided by 20, 25, 35, 40 leave 14, 19, 29, 34 as remainder.

**Ans.** Step 1

Subtract remainders from the respective numbers

$$20 - 14 = 6$$

$$25 - 19 = 6$$

$$35 - 29 = 6$$

$$40 - 34 = 6$$

#### Step 2

Find the LCM of the numbers

$$\text{LCM of } 20, 25, 35, 40 = 1440$$

#### Step 3

Subtract the remainder from the LCM so obtained to get the required number

$$\text{Required number } 1440 - 6 = 1394$$

#### **Pitfalls**

Remainders have to be subtracted from the numbers first, the L.C.M of the new numbers has to be found out. The difference obtained after subtracting remainders from respective numbers has to be then again subtracted from the LCM to get the required number.

## Type 9

Miscellaneous

**Q10.** Traffic lights at different road crossings change after 48 sec, 72 sec, and 108 sec respectively. If they all change simultaneously at 8:20:00 hours, then at what time will they again change simultaneously.

**Ans.** Step 1

Find the LCM of 48, 72, 108

LCM of 48, 72, 108 = 432 seconds

Step 2

Convert 432 seconds into minutes

432 seconds = 7 minutes 12 seconds

Step 3

Add the time obtained to the time when they change simultaneously

8:20:00 + 7 minutes 12 seconds = 8:27:12

Thus next simultaneous change will be at 8:27:12 hours

**Pitfalls** 

Units of measurement should be the same, if crossing time is given in seconds, it should be seconds for all three lights.

Whenever it is asked to find out about the simultaneous meetings of events, LCM always has to be found out.

### Practise Questions

#### LEVEL 1

**Q1.** Six bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10, and 12 seconds respectively. In 30 minutes, how many times do they toll together?

- A.8
- B.11
- C.13
- D.16
- E.None of these

**Q2.** The least multiple of 7, which leaves a remainder of 4, when divided by 6, 9, 15, and 18 is:

- A.6
- B.98
- C.180
- D.364
- E.None of these

**Q3.** The least number, which when divided by 48, 60, 72, 108 and 140 leaves 38, 50, 62, 98, and 130 as remainders respectively, is:

- A.11115
- B.15110
- C.15130
- D.15310
- E.None of these

**Q4.** The H.C.F. of two numbers is 11 and their L.C.M. is 7700. If one of the numbers is 275, then the other is:

- A.269
- B.275
- C. 308
- D.310
- E.None of these

**Q5.** A, B, and C start at the same time in the same direction to run around a circular stadium. A completes a round in 252 seconds, B in 308 seconds and C in 198 seconds, all starting at the same point. After what time will they meet again at the starting point?

- A. 15 minutes 15 seconds
- B. 42 minutes 30 seconds
- C. 42 minutes
- D. 46 minutes 12 seconds
- E. None of these

**Q6.** The L.C.M. of two numbers is 48. The numbers are in the ratio 2: 3. The sum of the number is:

- A. 30
- B. 22
- C. 40
- D. 60
- E. None of these

**Q7.** The least number, which when divided by 12, 15, 20, and 54 leaves in each case a remainder of 8 is:

- A. 534
- B. 486
- C. 544
- D. 548
- E. None of these

**Q8.** The product of the two numbers is 4107. If the H.C.F. of these numbers is 37, then the greater number is:

- A. 124
- B. 100
- C. 111
- D. 175
- E. None of these

**Q9.** The product of the two numbers is 2028 and their H.C.F. is 13. The number of such pairs is:

- A.1
- B.2
- C.3
- D.5
- E. None of these

**Q10.** The least number which should be added to 2497 so that the sum is exactly divisible by 5, 6, 4, and 3 is:

- A.10
- B.14
- C.23
- D.30
- E. None of these

## Answers and Solutions

### 1. Answer - D (16)

**Explanation:** L.c.M. of 2, 4, 6, 8, 10, 12 is 120. So, the bells will toll together after every 120 seconds, i.e., 2 minutes. In 30 minutes, they will toll together  $30/2 = 15$

### 2. Answer D (364)

**Explanation:** L.C.M. of 6, 9, 15, and 18 is 90.

Let the required number be  $90k + 4$ , which is a multiple of 7.

Least value of  $k$  for which  $(90k + 4)$  is divisible by 7 is  $k = 4$ .

Required number  $(90 \times 4) + 4 = 364$ .

### 3. Answer- B (15110)

**Explanation** Here  $(48 - 38) = 10$ ,  $(60 - 50) = 10$ ,  $(72 - 62) = 10$ ,  $(108 - 98) = 10$  &  $(140 - 130) = 10$ .

Required number = (L.C.M. of 48, 60, 72, 108, 140) - 10

$15120 - 10 = 15110$

### 4. Answer- c (308)

**Explanation:** Other number  $= [11 \times 7700] / 275 = 308$

### 5. Answer - D (46 minutes 12 seconds)

**Explanation:** L.C.M. of 252, 308 and 198 = 2772. So, A, B, and C will again meet at the starting point in 2772 sec i.e., 46 min. 12 sec

### 6. Answer c (40)

**Explanation:** Let the numbers be  $2x$  and  $3x$ .

Then, their L.C.M. =  $6x$ .

So,  $6x = 48$  or  $x = 8$ .

The numbers are 16 and 24.

Hence, required sum  $= (16 + 24) = 40$ .

### 7. Answer- D (548)

**Explanation:** Required number  $= (\text{L.C.M. of } 12, 15, 20, 54) + 8$

$540 + 8 = 548$ .

**Answer c (111)**

**Explanation:** Let the numbers be  $37a$  and  $37b$ .

Then,  $37a \times 37b = 4107$

$ab = 3$ .

Now, co-primes with product 3 are (1, 3).

So, the required numbers are  $(37 \times 1, 37 \times 3)$  i.e., (37, 111).

Greater number = 111.

**8. Answer B (2)**

**Explanation:** Let the numbers  $13a$  and  $13b$ .

Then,  $13a \times 13b = 2028$

$ab = 12$ .

Now, the co-primes with product 12 are (1, 12) and (3, 4).

**9. Answer- c (23)**

**Explanation:** L.C.M. of 5, 6, 4 and 3=60. On dividing 2497 by 60, the remainder is

37. Number to be added =  $(60 - 37) = 23$

## LEVEL 2

**Q1.** A rectangular courtyard 140cm long 525cm wide is to be paved exactly with square tiles, all of the same sizes. What is the largest size of the tile which could be used for the purpose?

- A)64cm
- B)35cm
- C)21cm
- D)28cm
- E)None of these

**Q2.** Two containers contain 50 and 125 liters of water respectively. Find the maximum capacity of a container which can measure the water in each container an exact number of times(in liters)

- A)25
- B)11
- c)12
- D)15
- E)None of these

**Q3.** Two baskets contain 183 and 242 Apples respectively, which are distributed in equal numbers among children. Find the largest number of apples that can be given, so that 3 apples are leftover from the first basket and 2 from the second.

- A)45
- B)40
- C)60
- D)56
- E)None of these

**Q4.** A person has 3 bars whose lengths are 12,16,24m respectively. He wants to cut the longest possible pieces, all of the same lengths from each of the 3 bars, what is the length of each piece, if he cuts it without any wastage

- A)12m
- B)20m

- C)6m
- D)4m
- E)None of these

**Q5.** Four bells commence tolling together and toll at the intervals of 3,9,12,15 seconds resp. In 60 minutes how many times they will toll together.

- A)20
- B)21
- C)24
- D)30
- E)None of these

**Q6.**In a seminar, the number of participants in Technology, Economics, and Science is 150, 90, and 180 respectively. Find the minimum number of rooms required, wherein each room the same number of participants are to be seated and all of them being in the same subject.

- A)27
- B)32
- c)30
- D)25
- E)None of these

**Q7.** Naren, Suraj, and Praveen start running around a circular stadium and complete one round in 12s, 9s, and 15s respectively. In how much time will they meet again at the starting point ?

- A)2m
- B)2.30m
- C)3m
- D)3.30m
- E)None of these

**Q8.** Three boxes of lengths 60m, 30m, and 45m are to be cut into pieces of equal length.

What is the greatest possible length of each piece?

A) 15m

B) 18m

C) 5m

D) 3m

E) None of these

**Q9.** In a college, all the students can stand in a row, so that each row has 9, 7, and 12 students. Find the least number of students in the school ?

A) 145

B) 265

C) 186

D) 252

E) None of these

**Q10.** The HCF of 3 different no is 17, Which of the following cannot be their LCM ?

A) 540

B) 289

C) 340

D) 425

E) None of these

## Answers and Solutions

### 1. Answer B)35 cm

#### Solution:

$$30 \text{ cm} = 4 \times 5 \times 7$$

$$525 \text{ cm} = 5 \times 5 \times 3 \times 7$$

Hence common factors are 5 and 7

$$\text{Hence LCM} = 5 \times 7 = 35$$

### 2. Answer A)25

#### Solution:

$$\text{HCF of } 50 \text{ and } 125 = 25$$

### 3. Answer - C)60

#### Solution:

$$183-3 = 180$$

$$142-2 = 240$$

$$\text{HCF of } 240, 180 = 60$$

### 4. Answer D)4 m

#### Solution:

$$\text{HCF of } 12, 16, 24 = 4\text{m}$$

### 5. Answer - B)21

#### Solution:

$$\text{LCM of } 3, 9, 12, 15 = 180\text{s} = 3\text{m}$$

$$\text{In } 60\text{m} = 60/3 = 20 \Rightarrow 20+1 = 21$$

### 6. Answer C)30

#### Solution:

$$\text{HCF of } 150, 90 \text{ and } 180 = 30$$

$$\text{No of participants can be seated in each room} = 30$$

**7. Answer - C)3 m**

**Solution:** LCM of 12, 9, 15 = 180s = 3m

**8. Answer- A)15 m**

**Solution:** HCF of 60, 30 and 45m = 15m

**9. Answer D)252**

**Solution:** LCM of 9, 7 and 12 = 252

**10. Answer- A)540**

**Solution:** 540 cannot be divisible by 13

### **LEVEL 3**

**Q1.** Find the least number which when divided by 2, 3, 4, and 5 leaves a remainder 3. But when divided by 9 leaves no remainder?

- a) 33
- b) 63
- c) 81
- D) 123
- e) None of these

**Q2.** Find the 4-digit smallest number which when divided by 12, 15, 25, 30 leaves no remainder?

- a) 1020
- b) 1120
- c) 1200
- d) 1800
- e) None of these

**Q3. Find the least number which when divided by 12, 27, and 35 leaves 6 as a remainder?**

- a. 3774
- b. 3780
- c. 3786
- d. 4786
- e. None of these

**Q4. The HCF and LCM of the two numbers are 84 and 840 respectively. If the first number is 168, find the second one**

- a) 420
- b) 360
- c) 210
- d) 480
- e) None of these

**Q5. Find the last number which when divided by 6, 8, 15 and 30 leaves the remainder 2, 4, 11 and 26 respectively?**

- a) 124
- b) 116
- b) 120
- d) 134
- e) None of these

**Q6. HCF and LCM of two numbers are 5 and 275 respectively and the sum of these two numbers is 80. Find the sum of the reciprocals of these numbers**

- a)  $16/125$
- b)  $32/275$
- c)  $32/125$
- d)  $16/275$
- e) None of these

**Q7. Three buckets contain balloons filled with water. First bucket contains 243 balloons. Second contains 304 balloons and the last bucket contains 127 balloons. Find the largest number of balloons that can be given equally to the children such that 3, 4 and 7 balloons are left in the first, second and third bucket respectively?**

- a) 20
- b) 30
- C) 40
- d) 60
- e) None of these

**Q8. Riya, Anil and Rishi start running around a circular stadium and complete one round in 15s, 12s and 21s respectively. In how much time will they meet again at the starting point?**

- a) 6min
- b) 7min
- d) 8min
- d) 9min
- e) None of these

**Q9. In a college all the students are made to stand in four rows. 4 rows contain 12, 8, 22, 30 students respectively. Find the least number of students in the college?**

- a) 3360
- b) 3630
- c) 3960
- d) 3990
- e) None of these

**Q10. Find the greatest number that will divide 427 and 900 leaving the remainders 3 and 8 respectively?**

- a) 2
- b) 4
- c) 8
- d) 12
- e) None of these

## Answers and Solutions

**1. Answer b) 63**

**Explanation:** LCM of 2, 3, 4 and 5 is 30, let number be  $30k + 3$   
put  $k = 2$ , we get 63 which is divisible by 9

**2. Answer c) 1200**

**Explanation:** LCM of 12, 15, 25 and 30 is 300  
least number of 4-digit divided by 300 is 1200

**3. Answer- c) 3786**

**Explanation:** Number =  $\text{LCM}(12, 17, 35) + 6 = 3780 + 6 = 3786$

**4. Answer a) 420**

**Explanation:**

$$\text{LCM} \times \text{HCF} = a \times b$$

$$840 \times 84 = 168 \times b, b = 420$$

**5. Answer b) 116**

**Explanation :**  $\text{LCM}(6, 8, 15, 30) - 4 = 120 - 4 = 116$

**6. Answer d) 16/275**

**Explanation:**  $a \times b = 5 \times 275$  and  $a + b = 80$

$$(a+b)/(a \times b) = 80/(5 \times 275) = 16/275$$

**7. Answer- d) 60**

**Explanation:**  $\text{HCF}(240, 300, 120) = 60$

**8. Answer b) 7min**

**Explanation:**  $\text{LCM}(15, 12, 21) = 420$  second = 7 minutes

**9. Answer c) 3960**

**Explanation:**  $\text{LCM}(12, 8, 22, 30) = 3960$

**10. Answer b) 4**

**Explanation:**  $\text{HCF}(427 - 3, 900 - 8) = \text{HCF}(424, 892) = 4$

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