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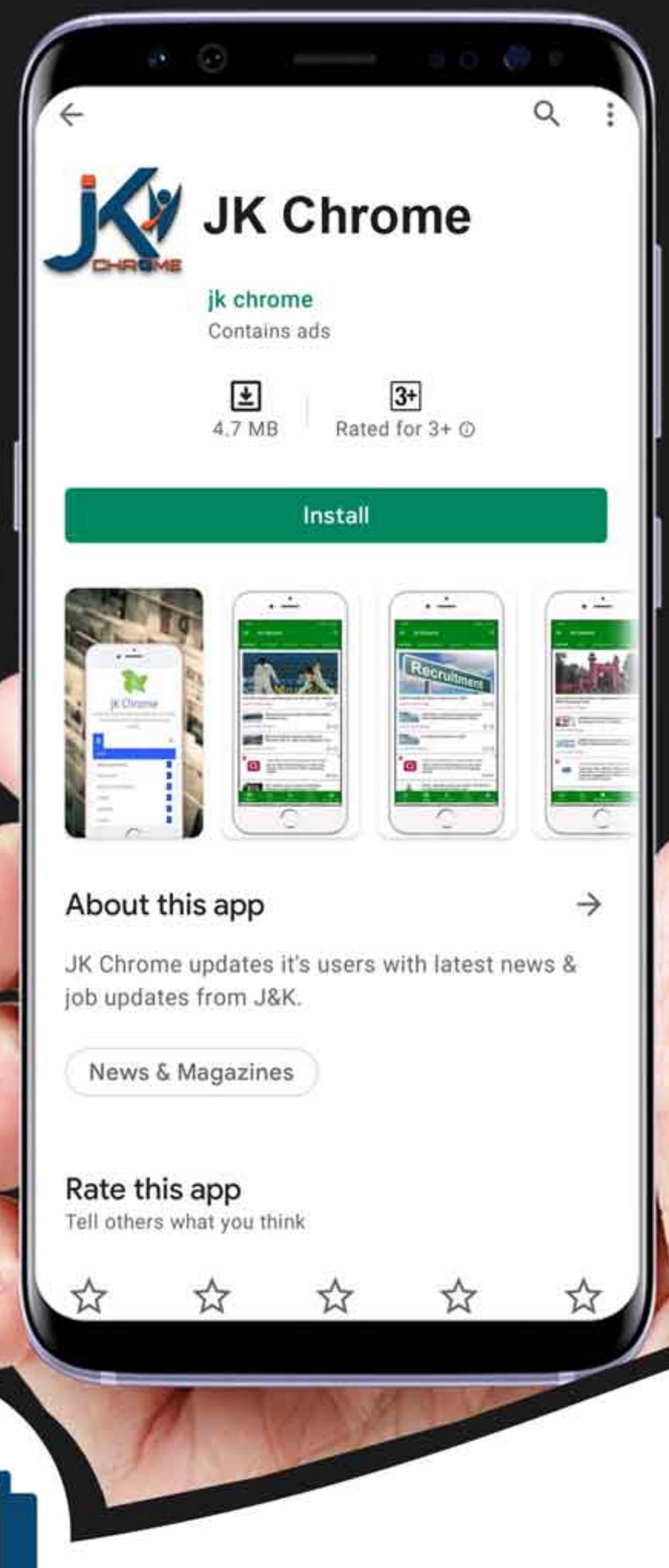

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LCM & HCF

LCM

A common multiple is a number that is a multiple of two or more than two numbers. The common multiples of 3 and 4 are 12, 24,...

The least common multiple (LCM) of two numbers is the smallest positive number that is a multiple of both.
Multiples of 3 — 3, 6, 9, 12, 15, 18, 21, 24,...
Multiples of 4 — 4, 8, 12, 16, 20, 24, 28,...
Therefore, LCM of 3 and 4 will be 12, which is the lowest common multiple of 3 and 4.

First of all, the basic question which lies is—for what kind of numbers, we can use LCM?
Let us explain it through an example: LCM of 10, 20, and 25 is 100. It means that 100 is the lowest number, which is divisible by all these three numbers.
Since (−100) is lower than 100 and divisible by each of 10, 20, and 25, can the LCM be (−100)? or can it be 0? Further, what will be the LCM of (−10) and 20? Will it be (−20) or (−200) or (−2000) or smallest of all the numbers, that is, <−∞?
Answer to all these questions is very simple: LCM is a concept defined only for positive numbers, whether the number is an integer or a fraction. In other words, **LCM is not defined for negative numbers or zero.**
Now, we will define a different method for finding the LCM of two or more than two positive integers.

Process to Find LCM

Step 1 Factorize all the numbers into their prime factors.
Step 2 Collect all the distinct factors.
Step 3 Raise each factor to its maximum available power and multiply.
Example 4 LCM of 10, 20, 25.
Solution
Step 1 $10 = 2^1 \times 5^1$
$20 = 2^2 \times 5^1$
$25 = 5^2$
Step 2 2, 5
Step 3 $2^2 \times 5^2 = 100$
One of the principal advantage of using this method is that we can find the LCM of any number of numbers in a straight line without using the conventional method. The following explains this using the previous example:
The LCM of 10 and 20 = 20, and LCM of 20 and 25 = 100
(For this, we have to know which factor of 25 is not present in 20; then, we need to multiply it by this factor. Therefore, 25 is having 52 and 20 is having 51 only, and hence, we will multiply 20 by 5.)

Highest Common Factor (HCF)

The factors that are positive integral values of a number and can divide that number is called HCF. HCF, which is also known as Greatest Common Divisor (GCD), is the highest value that can divide the given numbers.
Factors of 20 — 1, 2, 4, 5, 10, 20.
Factors of 30 — 1, 2, 3, 5, 6, 10, 15, 30.
Therefore, 10 will be the HCF of 20 and 30.

Process to Find HCF

Step 1 Factorize all the numbers into their prime factors.
Step 2 Collect all the common factors.
Step 3 Raise each factor to its minimum available power and multiply.

Example 7 HCF of 100, 200, and 250
Solution
Step 1 $100 = 2^2 \times 5^2$
$200 = 2^3 \times 5^2$
$250 = 5^3 \times 2^1$
Step 2 2, 5
Step 3 $2^1 \times 5^2 = 50$
Alternatively, to find HCF of numbers such as 100, 200, and 250, we have to observe the common quantity that can be taken from these numbers. To do this, we can write these
numbers as (100x + 200y + 250z), and now, it can be very easily observed that we can take 50 as the common number from the given numbers.
The LCM and HCF can be summarized as follows: it is very essential to understand the mechanism of determining LCM and HCF. These two concepts can be understood easily by the following example:

Terminology

Prime number : A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself.
For example, 2, 3, 5, 7, 11, 13, etc. are prime numbers.

Co-Prime Number: Two numbers are said to be relatively prime, mutually prime, or co-prime to each other when they have no common factor or the only common positive factor of the two numbers is 1.
In other words, two numbers are said to be co-primes if their H.C.F. is 1.

Factors: The numbers are said to be factors of a given number when they exactly divide that number.
Thus, factors of 18 are 1, 2, 3, 6, 9 and 18.

Common Factors: A common factor of two or more numbers is a number which divides each of them exactly.
Thus, each of the numbers - 2, 4 and 8 is a common factor of 8 and 24.

Multiple: When a number is exactly divisible by another number, then the former number is called the multiple of the latter number.
Thus, 45 is a multiple of 1, 3, 5, 9, 15 and 45.

Common Multiple: A common multiple of two or more numbers is a number which is exactly divisible by each of them.
For example, 12, 24 and 36 is a common multiple of 3, 4, 6 and 12.

Prime Factorisation: If a natural number is expressed as the product of prime numbers, then the factorisation of the number is called its prime factorisation.
A prime factorisation of a natural number can be expressed in the exponential form.
For example:
(1) 24 = 2 x 2 x 2 x 3 = 2^3 x 3.
(2) 420 = 2 x 2 x 3 x 5 x 7 = 2^2 x 3 x 5 x 7

Highest Common Factor (H.C.F.) or Greatest Common Divisor (G.C.D.) or Greatest Common Measure (G.C.M.) are synonymous terms:
The H.C.F of two or more than two numbers is the greatest numbers which divides each of them without any remainder.

The standard formulae are as follows:

1. LCM × HCF = product of two numbers. This formula can be applied only in the case of two numbers. However, if the numbers are relatively prime to each other (i.e., HCF of numbers = 1), then this formula can be applied for any number of numbers.
2. LCM of fractions = LCM of numerator of all the fractions/HCF of denominator of fractions.
3. HCF of fractions = HCF of numerator of all the fractions/LCM of denominator of fractions.
4. HCF of (sum of two numbers and their LCM) = HCF of numbers.

Example 9 HCF of two natural numbers A and B is 120 and their product is 10,000. How many sets of values of A and B is/are possible?
Solution HCF (A, B) = 120 => 120 is a common factor of both the numbers (120 being the HCF). Hence, 120 is present in both the numbers. Therefore, the minimum product of A and B = 120 × 120 = 14,400. Hence, no set of A and B are possible for satisfying the conditions.

The following gives some questions based on the standard application of LCM and HCF:

Case I

Time and Work

Example 12 Tatto can do a work in 10 days and Appo can do the same work in 12 days. How many days will it take if both start working together?
LCM of 10 and 12 = 60
Efficiency of A = 60/10=6
Efficiency of B = 60/12=5
A + B = 6+5 = 11
Together = 60/11

Case II

Time, speed, and distance — circular motion
Example 13 The speed of A is 15 m/s and speed of B is 20 m/s. They are running around a circular track of length 1000 m in the same direction. Let us find after how much time, will they meet at the starting point if they start running at the same time.
Solution Time taken by A and B in taking one circle are 66.66 s and 50 s, respeffectively. Therefore, LCM (66.66, 50) = 20s.

Case III

Number system— tolling the bell Example 14 There are two bells in a temple. Both the bells toll at a regular interval of 66.66 s and 50 s, respeffectively. After how much time, will they toll together for the first time?

Solution Time taken by Bell 1 and Bell 2 to toll is 66.66 s and 50 s. Therefore, LCM (66.66, 50) = 200 s.
Here, it can be observed that the mathematical interpretation of both the questions are same, only the language has been changed.

Case IV

Number System— Number of Rows Example 15
There are 24 peaches, 36 apricots, and 60 bananas and they have to be arranged in several rows in such a way that every row contains same number of fruits of one type. What is the minimum number of rows required for this arrangement?

Solution We can arrange one fruit in one row, and still in (24 + 36 + 60) = 120 rows, we can arrange all the fruits. Further, even we can arrange two fruits in one row and can arrange all the fruits in 60 rows. However, for the rows to be minimum, the number of fruits should be maximum in one row.
HCF of 24, 36, 60 = 12, and therefore, 12 fruits should be there in one row.
Hence, the number of rows = 10

Case V Number System— finding remainder
Example 16 Find the lowest three-digit number that when divided by 4 and 5 gives 3 as the remainder.
Solution Let us assume that there is no remainder. Therefore, the number has to be a multiple of LCM of 4 and 5. Now, LCM (4, 5) = 20

However, there is a remainder of 3 when divided by 4 and 5. Therefore, the number will be in the form of (207N + 3).

Hence, numbers are 23, 43, 63, 83, 103, and so on. Thus, the three-digit number is 103.

Previous year questions

Q1.
The LCM of two numbers is 864 and their HCF is 144. If one of the number is 288, the other number is:

(a) 576 (b) 1296

(c) 432 (d) 144

Q2.
LCM of two numbers is 225 and their HCF is 5. If one number is 25, the other number will be:

(a) 5 (b) 25

(c) 45 (d) 2253.

Q3.
The LCM of two numbers is 30 and their HCF is 5, One of the numbers is 10, The other is number will be :

(a) 20 (b) 25

(c) 15 (d) 54.

Q4.
The HCF and LCM of two numbers are 13 and 455 respectively. If one of the numbers lies between 75 and 125, then, that number is:

(a) 78 (b) 91

(c) 104 (d) 1175.

Q5.
The least number which when divided by 4, 6, 8, 12 and 16 leaves a remainder of 2 in each case is :

(a) 46 (b) 48

(c) 50 (d) 566.

Q6.
The least number, which when divided by 12, 15, 20 or 54 leaves remainder of 4 in each case is:

(a) 456 (b) 454

(c) 540 (d) 447.

Q7.
The maximum number of students among whom 1001 pens and 910 pencils can be distributed in such a way that each students get same number of pens and same number of pencils, is:

(a) 91 (b) 910

(c) 1001 (d) 1911

Q8.
Four bells ring at intervals of 4, 6, 8 and 14 seconus, They start ringing simultaneously at 12.00 O" clock. At what time will they again ring simultaneously:

(a) 12 hrs. 2 min. 48 sec

(c) 12 hrs. 3 min. 20 sec

Q9.
The product of the LCM and HCF of two numbers is 24. The difference of the two numbers is 2. Find the numbers?

(a) 8 and 6 (b) 8 and 10

(c) 2 and 4 (d) 6 and 4

Q10.
The LCM of two numbers is 495 and their HCF is 5. If the sum of the numbers is 100, then their difference is:

(a) 10 (b) 46

(c) 70 (d) 90

Q11.
Two numbers, both greater than 29, have HCF and LCM, 4147. The sum of the numbers is:

(a) 966 (b) 696

(c) 669 (d) 666

Q12.
The H.C.F of two numbers. is 8. Which one of the following can never be their L. C.M.

(a) 24 (b) 48

(c) 56 (d) 60

Q13.
The LCM and the HCF of the numbers 28 and 42 are in the ratio:

(a) 6: 1 (b) 2: 3

(c) 3 : 2 (d) 7 : 2

Q14.
The LCM of two numbers is 1820 and their HCF is 26. If one number is 130 then the other number is:

(a) 70 (b) 1690

(c) 364 (d) 1264

Q15.
The LCM of two numbers is 1920 and their HCF is 16. If one of the number is 128, find the other number:

(a) 204 (b) 240

(c) 260 (d) 320

Q16.
The HCF of two numbers 12906 and 14818 is 478. Their LCM is :

(a) 400086 (b) 200043

(c) 600129 (d) 800172

Q17.

Find the greatest number of five digits which when divided by 3, 5, 8, 12 leaves 2 as remainder

(a) 99990 (b) 99948

(c) 99962 (d) 99722

Q18.

The least multiple of 13, which on dividing by 4,5,6,7, and 8 leaves remainder 2 in each case is :

(a) 2520 (b) 842

(c) 2522 (d) 840

Q19.

Find the largest number of four digits such that on dividing by 15, 18, 21 and 24 the remainders are 11, 14, 17 and 20 respectively.

(a) 6557 (b) 7556

(c) 5675 (d) 7664

Q20.

4 bells ring at intervals of 30 minutes, 1 hour, 3/2 hour and 1 hour45 minutes respectively. All the bells ring simultaneously at 12 noon. They will again ring

(a) 12 mid night

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

Q21.

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

(c) 18 minutes

Q22.

The greatest number, which when divides 989 and 1327 leave remainders 5 and 7 respectively:

(a) 8 (b) .16

(c) 24 (d) 32613

Q23.

A milkman has 75 litres milk in one cane and 45 litres in another. The maximum capacity of container which can measure milk of either container exact number :

(a) 1 litre (b) 5 litres

(c) 15 litres

Q24.

Two numbers are in the ratio 3 : 4. If their HCF is 4, then their LCM is:

(a) 48 (b) 42

(c) 36 (d) 24

Q25.

Find the least multiple of 23, which when divided by 18, 21 and 24 leaves the remainder 7, 10 and 13 respectively.

(a) 3013 (b) 3024

(c) 3002 (d) 3036

Q26.

The HCF of two numbers is 16 and their LCM is 60. If one of the number is 32, then the other number is :

(a) 48 (b) 80

(c) 96 (d) 112

Q27.

The product of two Number is 4107. If the HCF of the numbers is 37, the greater number is :

(a) 185 (b) 111

(c) 107 (d) 101

Q28.

The least perfect square, which is divisible by each of 21, 36 and 66 is:

(a) 214344 (b) 214434

(c) 213444 (d) 231444

Q29.

The least number, which when divided by 4, 5 and 6 leaves remainder 1,2 and 3 respectively, is:

(a) 57 (b) 59

(c) 61 (d) 63

(b) 3 a.m.

Q30.

Let the least number of six digits which when divided by 4, 6, 10, 15 leave in each case same remainder 2 be N. The sum of digits in N is:

(a) 3 (b) 5

(c) 4 (d) 6

(b) 12 minutes

(d) 24 minutes

Q31.

Which is the least number which when doubled will be exactly divisible by 12, 18, 21 and 30 ?

(a) 2520 (b) 1260

(c) 630 (d) 196

Q32.

The smallest square number divisible by 10, 16 and 24 is:

(a) 900 (b) 1600

(c) 2500 (d) 3600

Q33.

(d) 25 litres

From a point on a circular track 5km long A, B and C started running in the same direction at the same time with speed of 5/2 km per hour, 3 km per hour and 2 km per hour respectively. Then on the starting point all three will meet again after

(a) 30 hours

(c) 10 hours

Q34.

What is the least number of square tiles required to have the floor of a room 15 m 17 cm long and 9 m 20 cm broad?

(a) 840 (b) 841

(c) 820 (d) 814

Q35.

If the ratio of the two numbers is 2 : 3 and their LCM is 54, then the sum of the two number is:

(a) 5 (b) 15

(c) 45 (d) 270

Q36.

The ratio of two numbers is 4: 5 and their LCM is 120, The numbers are:

(a) 30, 40 (b) 40, 32

(c) 24, 30 (d) 36, 20

Q37.

Three numbers which are co-prime to one another are such that the product of the first two is 551 and that of the last two is 1073. The sum of the three numbers is:

(a) 75 (b) 81

(c) 85 (d) 89

Q38.

HCF and LCM of two numbers are 7 and 140 respectively. If the numbers are between 20 and 45, the sum of the numbers is:

(a) 70 (b) 77

(c) 63 (d) 56

Q39.

The HCF of two numbers is 15 and their LCM is 300. If one of the number is 60, the other is:

(a) 50 (b) 75

(c) 65 (d) 100

Q40.

The HCF of two numbers is 23 and the other two factors of their LCM are 13 and 14. The larger of the numbers is :

(a) 276 (b) 299

(c) 345 (d) 322

Q41.

If the students of a class can be grouped exactly into 6 or 8 or 10, then the minimum number of students in the class must be.

(a) 60 (b) 120

(c) 180 (d) 240

Q42.

The least number which when divided by 4, 6, 8 and 9 leave zero remainder in each case and when divided by 13 leaves a remainder of 7 is:

(a) 144 (b) 72

(c) 36 (d) 85

Q43.

The number nearest to 10000, which is exactly divisible by each of 3, 4, 5, 6, 7 and 8, is :

(a) 9240 (b) 10080

(c) 9996 (d) 10000

Q44.

Let N be the greatest number that will divide 1305, 4665 and 6905 leaving the sane remainder in each case. Then, sum of the digits in N is:

(a) 4 (b) 5

(c) 6 (d) 8

Q45.

The sum of two numbers is 36 and their HCF is 4. How many pairs of such number are possible?

(a) 1 (b) 2

(c) 3 (d) 4

Q46.

The greatest number, that divides 122 and 243 leaving respectively 2 and 3 as remainders is:

(a) 12 (b) 24

(c) 30 (d) 120

Q47.

The HCF and LCM of two 2-digit number are 16 and 480 respectively. The numbers are :

(a) 40, 48 (b) 60, 72

(c) 64, 80 (d) 80, 96

Q48.

The smallest number, which when divided by 12 and 16 leaves remainder 5 and 9 respectively, is :

(a) 55 (b) 41

(c) 39 (d) 29

Q49.

A number which when divided by 10 leaves a remainder of 9, when divided by 9 leaves a remainder of 8, and when divided by 8 leaves a remainder of 7, is :

(a) 1539 (b) 539

(c) 359 (d) 1359

Q50.

What is the smallest number which leaves remainder 3 when divided by any of the numbers 5, 6 or 8 but leaves no remainder when it is divided by 9 ?

(a) 123 (b) 603

(c) 723 (d) 243

Q51.

What is the least number which when divided by the number 3,5,6,8,10 and 12 leaves in each case a remainder 2 but when divided by 22 leaves no remainder?

(a) 312 (b) 242

(c) 1562 (d) 1586

Q52.

What is the greatest number that will divide 307 and 330 leaving remainder 3 and %7 respectively ?

(a) 19 (b) 16

(c) 17 (d) 23

Q53.

The sum of the HCF and LCM of two number is 680 and the LCM is 84 times the HCF. If one of the number is 56, the other is:

(a) 84 (b) 12

(c) 8 (d) 96

Q54.

The LCM of two numbers is 20 times their HCF. The Sum of HCF and LCM is 2520. If one of the number 480, the other number is :

(a) 400 (b) 480

(c) 520 (d) 600

Q55.

The largest 4-digit number exactly divisible by each of 12, 15, 18 and 27 is:

(a) 9690 (b) 9720

(c) 9930 (d) 9960

Q56.

Which greatest number will divide 3026 and 5053 leaving remainder 11 and 13 respectively?

(a) 19 (b) 30

(c) 17 (d) 45

Q57.

The greatest number, by which 1657 and 2037 are divided to give remainders 6 and 5 respectively, is:

(a) 127 (b) 133

(c) 235 (d) 305

Q58.

The product of two numbers is 1280 and their HCF is 8. The LCM of the number will be:

(a) 160 (b) 150

(c) 120 (d) 140

Q59.

The least multiple of 7, which leaves the remainder 4, when divided by any of 6, 9, 15 and 18, is:

(a) 76 (b) 94

(c) 184 (d) 364

Q60.

The largest number of five digits which, when divided by 16, 24, 30 or 36 leaves the same remainder 10 in each case, is:

(a) 99279 (b) 99370

(c) 99269 (d) 99350

Q61.

The least number, which is a perfect square and is divisible by each of the numbers 16, 20 and 24 is:

(a) 1600 (b) 3600

(c) 6400 (d) 14400

Q62.

The number nearest to 43582 divisible by each of 25, 50 and 75 is:

(a) 43500 (b) 43650

(c) 43600 (d) 43550

Q63.

Three sets of English, Mathematics and Science books containing 336, 240, 96 books respectively have to be stacked in such a way that all the books are stored subject-wise and the height of each stack is the same. Total number of stacks will be:

(a) 14 (b) 21

(c) 22 (d) 48

Q64.

Three numbers are in the ratio 2 : 3 : 4. If their LCM is 240, the smaller of the three numbers is :

(a) 40 (b) 60

(c) 30 (d) 80

Q65.

The sum of two numbers is 45. Their difference is 1/9 of their sum. Their LCM is:

(a) 200 (b) 250

(c) 100 (d) 150

Q66.

The HCF of two numbers, each having three digits, is 17 and their LCM is 714. The sum of the numbers will be :

(a) 289 (b) 391

(c) 221 (d) 731

Q67.

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

Q68.

The smallest number, which when divided by 5, 10, 12 and 15, leaves remainder 2 in each case, but when divided by 7 leaves no remainder, is:

(a) 189 (b) 182

(c) 175 (d) 91

Q69.

What least number must be subtracted from 1936 so that the resulting number when divided by 9, 10 and 15 will leave in each case the same remainder 7?

(a) 37 (b) 36

(c) 39 (d) 30

Q70.

The least number, which when divided by 18, 27 and 36 separately leaves remainders 5, 14, 23 respectively, is :

(a) 95 (b) 113

(c) 149 (d) 77

Q71.

The smallest number, which when increased by 5 is divisible by each of 24, 32, 36 and 64, is

(a) 869 (b) 859

(c) 571 (d) 427

Q72.

Two numbers are in the ratio 3 : 4, If their LCM is 240, the smaller of the two number is :

(a) 100 (b) 80

(c) 60 (d) 50

Q73.

The product of the LCM and the HCF of two numbers is 24, If the difference of the number is 2, then the greater of the number?

(a) 3 (b) 4

(c) 6 (d) 8

Q74.

The sum of two numbers is 216 and their HCF 27. How many pairs of such number are there ?

(a) 1 (b) 2

(c) 3 (d) 0

Q75.

The LCM of two numbers is 12 times their HCF. The sum of the HCF and the LCM is 403. If one of the number is 93, then the other number is :

(a) 124 (b) 128

(c) 134 (d) 38

Q76.

The product of two numbers is 20736 and their HCF is 54. Find their LCM.

(a) 685 (b) 468

(c) 648 (d) 384

Q77.

The greatest number of four digits which when divided by 12, 16, and 24 leave remainders 2, 6 and 14 respectively is :

(a) 9974 (b) 9970

(c) 9807 (d) 9998

Q78.

When a number is divide 15, 20 or 35, each time the remainder is 8. Then the smallest number is:

(a) 428 (b) 427

(c) 328 (d) 338

Q79.

Two numbers are in the ratio 3 : 4. The product of their HCF and LCM is 2028. The sum of the numbers is:

(a) 68 (b) 72

(c) 86 (d) 91

Q80.

Sum of two numbers is 384, HCF of the numbers is 48, The difference of the numbers is :

(a) 100 (b) 192

(c) 288 (d) 336

Q81.

The LCM of two multiples of 12 is 1056. If one of the number is 132, the other number is :

(a) 12 (b) 72

(c) 96 (d) 132

Q82.

The product of two numbers is 396 × 576 and their LCM is 6336. Find their HCF :

(a) 36 (b) 34

(c) 63 (d) 43

Q83.

The HCF and LCM of two numbers are 8 and 48 respectively. If one of the number is 24, then the other number is:

(a) 48 (b) 36

(c) 24 (d) 16

Q84.

The HCF and LCM of two numbers are 12 and 336 respectively. If one of the number is 84, the other is :

(a) 36 (b) 48

(c) 72 (d) 96

Q85.

The product of two numbers is 216. If the HCF is 6 then their LCM is :

(a) 72 (b) 60

(c) 48 (d) 36

Q86.

The HCF and LCM of two numbers are 8 and 378 respectively. If one of the number is 54, then the other lumber is:

(a) 126 (b) 144

(c) 198 (d) 238

Q87.

The greatest number, which when subtracted from 5834, gives a number exactly divisible by each of 20, 28, 32 and 35, is.

(a) 1120 (b) 4714

(c) 5200 (d) 5600

Q88.

The smallest perfect square divisible by each of 6, 12 and 18 is :

(a) 196 (b) 144

(c) 108 (d) 36

Q89.

Two numbers are in the ratio 3 : 4. Their LCM is 84. The greater number is:

(a) 21 (b) 24

(c) 28 (d) 84

Q90.

The sum of two numbers is 84 and their HCF is 12. Total number of such pairs of number is :

(a) 2 (b) 3

(c) 4 (d) 5

Q91.

The sum of two numbers is 36 and their HCF and LCM are 3 and 105 respectively. The sum of the reciprocals of two numbers:

(a) 2/35 (b) 3/25

(c) 4/35 (d) 2/25

Q92.

The LCM of two numbers is 44 times of their HCF. The sum of the LCM and HCF is 1125. If one number is 25, then the other number is:

(a) 1100 (b) 975

(c) 900 (d) 800

Q93.

The HCF and LCM of two numbers are 12 and 924 respectively. Then the number of such pairs is :

(a) 0 (b) 1

(c) 2 (d) 3

Q94.

The LCM of two numbers is 520 and their HCF is 4. If one of the number is 52, then the other number is :

(a) 40 (b) 42

(c) 50 (d) 52

Q95.

The HCF of two numbers is 96 and their LCM is 1296. If one of the number is 864, the other is :

(a) 132 (b) 135

(c) 140 (d) 144

Q96.

The LCM of two numbers is 4 times their HCF. The sum of LCM and HCF is 125. If one of the number is 100, then the other number is :

(a) 5 (b) 25

(c) 100 (d) 125

Q97.

The product of two numbers is 2028 and their HCF is the number of such pair is :

(a) 1 (b) 2

(c) 3 (d) 4

Q98.

The LCM of three different numbers is 120, Which of the following cannot be their HCF ?

(a) 8 (b) 12

(c) 24 (d) 35

Q99.

The least number which when divided by 16, 18, 20 and 25 leaves 4 as remainder in each case but when divided by 7 leaves no remainder is :

(a) 17004 (b) 18000

(c) 18002 (d) 18004

Q100.

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

(c) 10 : 17 : 02 AM

Q101.

Find the HCF of 3/4, 5/6 and 6/7 ?

(a)5/14 (b)1/84

(c) 1/63 (d) 1/168

Q102.

Four runners started running simultaneously from a point on a circular track. They took 200 seconds, 300 seconds, 360 seconds and 450 seconds to complete one round. After how much time do they meet at the starting point for the first time ?

(a) 1800 seconds

(c) 2400 seconds

Q103.

Three bells ring simultaneously at 11 a.m. They ring at regular intervals of 20 minutes, 30 minutes, 40 minutes respectively. The time when all the three ring together next is :

(a) 2 p.m. (b) 1 p.m.

(c) 1.15 p.m.

Q104.

A farmer has 945 cows and 2475 sheep. He farms them into flocks, keeping cows and sheep separate and having the same number of animals in each flock. If these flocks are as large as possible, then the maximum number of

animals in each flock and total number of flocks required for the purpose are respectively.

(a) 15 and 228

(c) 45 and 76

Q105.

The greatest 4-digit number exactly divisible by 10, 15, 20 is:

(a) 9990 (b) 9960

(c) 9980 (d) 9995

Q106.

The greatest number that divides 411, 684, 821 and leaves 3, 4 and 5 as remainder respectively, is :

254 (b) 146

(c) 136 (d) 204

Q107.

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

(a) 10 (b) 60

(c) 15 (d) 12

Q108.

If A and B are the HCF and LCM respectively of two algebratic expressions x and y, and A + B = x + y, then the value of $A^3 + B^3$ is :

(a) $x^3 - y^3$ (b) x^3

(c) y^3 (d) $x^3 + y^3$

Q109.

The HCF and LCM of two numbers are 44 and 264 respectively. If the first number is divided by 2, the quotient is 44. The Other number is:

(a) 147 (b) 528

(c) 132 (d) 264

Q110.

Three men step off together from the same spot. Their steps measure 63 cm, 70 cm and 77 cm respectively. The minimum distance each should cover so that all can cover the distance in complete steps is :

(a) 9630 cm

(c) 6930 cm

Q111.

Find the greatest number which will exactly divide 200 and 320?

(a) 10 (b) 20

(c) 16 (d) 40

Q112.

84 Maths books, 90 Physics books and 120 Chemistry books have to be stacked topic wise. How many books will be there in each stack so that each stack will have the height too?

(a) 12 (b) 18

(c) 6 (d) 21

Q113.

The greatest number that will divide 729 and 901 leaving remainders 9 and 5 respectively is : (b) 9 and 380

(d) 46 and 75

(a) 15 (b) 16

(c) 19 (d) 20

Q114.

Three numbers are in the ratio 1 : 2 : 3 and their HCF is 12. The numbers are :

(a) 12, 24, 36

(c) 4,8, 12 (d) 10, 20, 30

Q115.

If x : y be the ratio of two whole numbers and z be their HCF, then the LCM of those two number is :

(a) yz (b) xz/y

(c) xy/z (d) xyz

Q116.

If the HCF and LCM of two consecutive (positive) even numbers be 2 and 84 respectively, then the sum of the numbers is:

(a) 30 (b) 26

(c) 14 (d) 34

Q117.

If $P = 2^3.3^{10}.5$: $Q = 2^5.3.7$, then HCF of P and Q is:

(a) 2.3.5.7 (b) 3.2^3

(c) $2^2.3^7$ (d) $2^5.3^{10}.5.7$

Q118.

A fraction become 1/6 when 4 is subtracted from its numerator and 1 is added to its denominator. If2 and 1 are respectively added to its numerator and the denominator, it becomes 1/3. Then, the LCM of the numerator and denominator of the said fraction, must be :

(a) 14 (b) 350

(c) 5 (d) 70

Q119.

HCF of 2/3, 4/5 and 6/7 is : (b) 9360 cm

(d) 6950 cm

(a) 48/105 (b) 2/105

(c) 1/105 (d) 24/105

Q120.

What is the greatest number which will divide 110 and 128 leaving a remainder 2 in each case?

(a) 8 (b) 18

(c) 28 (d) 38

Q121.

A milk vendor has 21 litres of cow milk, 42 litres of toned milk and 63 litres of double toned milk. If he wants to pack them in cans so that each can contains same

litres of milk and does not want to mix any two kinds of milk in a can, then the least number of cans required is :

(a) 8 (b) 6

(c) 9 (d) 12

Q122.

The LCM of two positive integers is twice the larger number. The difference of the smaller number and the GCD of the two numbers is 4. The smaller number is:

(a) 12 (b) 6

(c) 8 (d) 10

Q123.

The HCF (GCD) of a, b is 12, a, b are positive integers and a > b > 12. The smallest values of (a, b) are respectively :

(a) 12, 24 (b) 24, 12

(c) 24, 36 (d) 36, 24

Q124.

Product of two co-prime numbers is 117. Then their LCM is :

(a) 117 (b) 9

(c) 3 (d) 39

Q125.

The product of two numbers is 2160 and their HCF is 12. Number of such possible pairs are :

(a) 1 (b) 2

(c) 3 (d) 4

Q126.

LCM of two number is 2079 and their HCF is 27. If one of the number is 189 , the other number is :

(a) 297 (b) 584

(c) 189 (d) 216

Q127.

Five 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.

Q128.

LCM of 2/3, 4/9 and 5/6 is :

(a) 8/27 (b) 20/3

(c) 10/3 (d) 20/27

Q129.

The least number which when divided by 6, 9, 12, 15, 18 leaves the same remainder 2 in each case is:

(a) 180 (b) 176

(c) 182 (d) 178

Q130.

The HCF of $x^6 - 1$ and $x^4 + 2x^3 - 2x^1 - 1$ is:

(a) $x^2 + 1$ (b) x - 1

(c) $x^2 - 1$ (d) x + 1

Q131.

The greatest number by which 2300 and 3500 are divided leaving the remainders of 32 and 56 respectively. If,

(a) 168 (b) 42

(c) 48 (d) 136

Q132.

Let x be the smallest number, which when added to 2000 makes the resulting number divisible by 12, 16, 18 and 21. The sum of the digits of x is :

(a) 6 (b) 5

(c) 7 (d) 5

Q133.

Let x be the least number, which when divided by 5,6, 7 and 8 leaves a remainder 3 in each case but when divided by 9 leaves remainder 0. The sum of digits of x is :

(a) 24 (b) 21

(c) 22 (d) 18

Q134.

A number when divided by 361 gives remainder 47. When the same number is divided by 19 then find the remainder ?

(a) 9 (b) 1

(c) 8 (d) 3

Q135.

The H.C.F and L.C.M of two numbers are 21 and 84 respectively. If the rati of two numbers is 1 : 4, then the larger of the two numbers is :

(a) 48 (b) 12

(c) 84 (d) 108

Q136.

The LCM of two numbers is 12 times their HCF. The sum of the HCF and LCM is 403. If one of the number is 93, then the other is :

(a) 116 (b) 124

(c) 112 (d) 120

Q137.

The number of pair of positive integers whose sum is 99 and HCF is 9 is :

(a) 5 (b) 2

(c) 3 (d) 4

Q138.

The ratio of two numbers is 3 : 4 and their LCM is 120. The sum of numbers is :

(a) 70 (b) 35

(c) 140 (d) 105

Q139.

The greatest four digit number which is exactly divisible by each one of the numbers 12, 18, 21 and 28?

(a) 9828 (b) 9882

(c) 9928 (d) 9288

Q140.

The smallest five digit number which is divisible by 12, 18 and 21 is :

(a) 10080 (b) 30256

(c) 10224 (d) 50321

Q141.

A numbers between 1000 and 2000 which when divided by 30, 36 and 80 gives a remainder 11 in each case is :

(a) 11523 (b) 1451

(c) 1641 (d) 1712

Q142.

The difference between the greatest and least prime numbers which are less than 100 is :

(a) 95 (b) 96

(c) 97 (d) 94

Q143.

The number between 4000 and 5000 that is divisible by each of 12, 18, 21 and 32 is :

(a) 4203 (b) 4023

(c) 4032 (d) 4302

ANSWER :

1 c	**2** c	**3** c	**4** b	**5** c	**6** d
7 a	**8** a	**9** d	**10** a	**11** b	**12** d
13 a	**14** c	**15** b	**16** a	**17** c	**18** c
19 b	**20** d	**21** a	**22** c	**23** c	**24** a
25 a	**26** b	**27** b	**28** c	**29** a	**30** b
31 b	**32** d	**33** c	**34** d	**35** c	**36** c
37 c	**38** c	**39** b	**40** d	**41** b	**42** b
43 b	**44** a	**45** c	**46** d	**47** d	**48** b
49 c	**50** d	**51** b	**52** a	**53** d	**54** d
55 b	**56** d	**57** a	**58** a	**59** d	**60** b
61 b	**62** b	**63** a	**64** a	**65** c	**66** c
67 c	**68** b	**69** c	**70** a	**71** c	**72** c
73 c	**74** b	**75** a	**76** d	**77** a	**78** a
79 d	**80** c	**81** c	**82** a	**83** d	**84** b
85 d	**86** a	**87** b	**88** d	**89** c	**90** b
91 c	**92** a	**93** c	**94** a	**95** d	**96** b
97 b	**98** d	**99** d	**100** b	**101** b	**102** a
103 b	**104** c	**105** b	**106** c	**107** b	**108** d
109 c	**110** c	**111** d	**112** c	**113** b	**114** a
115 d	**116** b	**117** b	**118** a	**119** b	**120** b
121 b	**122** c	**123** d	**124** a	**125** b	**126** a
127 c	**128** b	**129** c	**130** c	**131** b	**132** c
133 d	**134** a	**135** c	**136** b	**137** a	**138** a
139 a	**140** a	**141** b	**142** a	**143** c	

1. (c) LCM × HCF = 1st. Number × 2nd. number or
Product of numbers = HCF × LCM
→ LCM = 864
HCF = 144
One number x = 288
Thus Let other no. be y
Thus,, x y = LCM × HCF
→ 288 × y = 864 × 144
y = $\frac{864\times144}{288}$ = 432
Thus, Other no. will be = 432

2. (c) LCM = 225
HCF = 5
One number = 25
Thus, Let other number be y
Thus,. 25 × y = 225 × 5
y = $\frac{225\times5}{25}$ = 45
Thus, Another no. is 45

3. (c) LCM = 30
HCF = 5 (given)
One number = 10
Let another number = y
Thus, 10y = 30 × 5
y = 15

4. (b) HCF = 13
LCM = 455
Thus, Let number be 13x & 13y
Thus, LC M = 13 × y
Thus, LCM = HCF × Product of other factor
13 x y = 455
xy = $\frac{455}{13}$ = 35
→ x y = 35
Possible co-prime Factors of x,y
→ (35, 1) (5, 7)
Thus, Numbers may be
→ 35 × 13, 1 × 13 = (455, 13)
or
→ 5 × 13, 7 × 13 = (65, 91)
→ But it is given that one number lies between (75 & 125) so.
→ Numbers are (65, 91) and number between 75 & 125 is 91.
LCM of (65, 91) and number between 75 & 125 is 91.

5. (c) LCM of (4, 6 , 8 , 12, 16)
→ 16 × 3 = 48
Thus, The number when divided by (4, 6 , 8 , 12, 16) leaves reminder 2 is = 48 + 2 = 50

6. (d) LCM of (12, 15, 20, 54)
→ 4 × 3 × 5 × 9 = 540
Thus, the required number is
540 + 4 = 544
→ Because when divided by LCM each is divided completely, By adding 4 in LCM leaves remainder 4.

7. (a) 1001 pens, 910 pencils (given)
HCF of 1001, 910 is = 91
Thus, maximum no. of students are = 91

8. LCM of 4 , 6 , 8, 14 = 168 seconds

2	4 , 6, 8 , 14
2	2, 3, 4, 7
	1, 3. 2 , 7

LCM = 3 × 2 × 7 × 2 × 2 = 168 seconds

$= \frac{68}{60} = 2\frac{48}{60}$ = 2 minute 48 seconds

Thus, 1st they start ringing at 12.00 o'clock

→ Again they ring all together after 2 minutes 48 seconds at 12 hrs. 2 min. 48 seconds.

9. (a) LCM × HCF = 24

Thus, Product of numbers = 24

Let no. be = x, y

xy = 24

and x - y = 2 (given)

Factors of x y = 24 are (4, 6) (12, 2)

(8, 3) (24, 1)

→ Now difference between numbers be = (x- y) = 2

So, Factor is (4, 6)

10.

(a) LCM = 495

HCF = 5 (given)

Thus, Let numbers are = 5x & 5y

Thus, LCM = 5 x y

5 x y = 495

x y = 99

thus, Possible co-prime factors are

$\begin{bmatrix} 1 & , 99 \\ 9 & , 11 \end{bmatrix}$

Thus, Possible numbers are

5x , 5y = $\begin{bmatrix} 45, & 55 \\ 5, & 495 \end{bmatrix}$

Now, given that sum of numbers = 100

so, required numbers are = (45, 55)

Thus, Difference of numbers = 55 – 45 = 10

11. (b) HCF = 29

Thus, Let numbers are 29x , 29 y

LCM = 29 xy

→ LCM = 4147 (given)

→ 29 xy = 4147

$xy = \frac{4147}{29}$ =143

Possible co –prime factors =

$\begin{pmatrix} 1, & 143 \\ 11, & 13 \end{pmatrix}$

Thus, Possible number are = (29, 4147), (319, 377)

= Thus, Sum of numbers = 319 + 377 = 696

12. (d) HCF = 8

→ Now, LCM should have a factor =

So, check also the option we have only 60 which does not have a factor 8. So, it will never be the LCM.

13. (a) Numbers, x = 28 , y = 42

HCF (28, 42)

→ Difference = 42 – 28 = 14

→ For HCF of any numbers take their difference, HCF will be either the factor of that difference or the difference itself.

Now, LCM of 28, 42

Thus, 14 × 2 × 3 = 84

→ LCM : HCF

84 : 14

6 : 1

14. (c) LCM = 1820

HCF = 26

1st. number = 130

→ LCM × HCF = Product of numbers

→ Let the other number is x

Thus, 130 × x = 1820 × 26

$x = \frac{1820 \times 26}{130} = 364$

15. (b) LCM = 1920

HCF = 16

1st. number = 128

Let IInd. number = x

x × 128 = 1920 × 16

$x = \frac{1920 \times 16}{128} = 240$

x = 240

16. (a) HCF = 478

Numbers are = 12906 + and 14818

Thus, LCM × HCF = 12906 × 14818

LCM × 478 = 129 × 14818

LCM = 400086

17. (c) LCM (3, 5, 8, 12) → 3 × 5 × 8 × 3 = 120

→ Now, greatest five digit number is 99999

On dividing 99999 by = 120 (LCM) we get remainder =

$\frac{99999}{120}, remainder = 39$

→ By subtracting remainder from 99999 we get the greatest five digit number which is completely divisible by given numbers (3, 5 , 8 , 12)

Thus, 99999 – 39 = 99960

→ Now we required the greatest five digit number which when divided by (3, 5, 8, 12) leaves remainder 2 in each case

→ add 2 in the 99960 = 99960 + 2 = 99962

18. (c) LCM (4, 5, 6, 7, 8)

= 4 × 5 × 6 × 7 = 840

→ required number = 840k + 2, which is divisible by 13,

For $\frac{(840k+2)}{13}$, (remainder = 0)

Remainder = $\frac{8k+2}{13}$

Put K = 3

Than, remainder = 0

for least multiple value of k is minimum.

→ at K = 3 we get 840 k + 2

= 840 × 3 + 2

= 2520 + 2 = 2522

19.

(b) LCM (15, 18, 21, 24)

→ 5 × 3 × 6 × 7 × 4 = 2520

→In such type of between given number and remainder of the number.

Number	Remainder
(15 - 11) = 4	It will be same always
(18 - 14) = 4	
(21 – 17) = 4	
(24 - 20) = 4	

Now: Largest 4 digit number is 9999

→ On dividing 9999 by LCM (2520) we get remainder → 2439

Subtract remainder from 9999 we get largest 4 digit number, which is divisible by given number

= 9999 – 2439 = 7560

But required no. gives difference on dividing so,

Thus, Our required number

= 7560 – 4 (difference) = 7556

20. (d) LCM (30, 60, 90, 105)

Thus, 15 × 2 × 2 × 3 × 7 = 1260 minutes

$\frac{1260}{60} = 21\ hours$

(They ring simultaneously after every 21 hours)

They ring at 12 noon. So they again ring at 9 am

21. (a) LCM (5, 6, 8 , 9) = 5 × 6 × 4 × 3 = 360 seconds

$\frac{360}{60} = 6\ minutes$

→ Bells will ring simultaneously after every 6 minutes.

22. (c) 989 5 = 984

1327 – 7 = 1320

(Subtract the remainder from the number.)

HCF = (984, 1320) = 24

for greatest number take HCF of the numbers

23. (a) 75 liters, 45 liters

For minimum capacity take HCF = (75 , 45) = 15

24. (a) Let numbers be = x, y

s : y = 3 : 4 (given)

HCF = 4

Thus, Numbers are = x = 4 × 3 = 12

y = 4 × 4 = 16

LCM (12, 16) = → 4 × 3 × 4 = 49

25. (a) 18 – 7 = 11

21 - 10 = 11

24 – 13 = 11

take LCM (18 , 21 , 24) → 9 × 2 × 7 × 4 = 504

→ Required number = (504k - 11)

which is divided by 23

Thus, For $\frac{504k-11}{23}$,

Remainder should be zero

Put minimum value of k so that it completely divides 23.

→ at k = 6, 504k - 11 = 3013

Completely divisible by 23.

Thus, Required number is = 3013

26. (b) HCF = 16

LCM = 160

1st. number 32

Let, Second Number = x

Product of number = LCM × HCF

Thus, 32 × x = 16 × 160

x = $\frac{16\times160}{32}$ = 80

27. (b) HCF = 37

Thus, Let the no. are

= 37x & 37y

given, 37x × 37y = 4107

= xy = 3

Possible factors of x y = (1, 3)

28. (c) Thus, Numbers are = (37, 36, 66)
= 21 × 12 × 11
= 7 × 3 × 4 × 3 × 11
= 7 × 3 × 2 × 2 × 3 × 11
for perfect square multiply by 7 × 11
So that pairs of number from perfect square

Thus, $\underbrace{7 \times 7} \times \underbrace{3 \times 3} \times \underbrace{2 \times 2} \times \underbrace{11 \times 11}$

required result is

→213444

(which is perfect square)

29. (a) 4 – 1 = 3
5 – 2 = 3
6 – 3 = 3
LCM (4,5,6) = 4 × 5 × 3 = 60
Thus, Required number is = 60 – 3 = 57

30. (b) LCM (4, 6 , 10, 15)
LCM = 2 × 2 × 3 × 5 = 60
→ Least number of six digit
= 100000
→ divide 100000 by 60 we get remainder 40
→ least six digit number which is divisible by
(4,6,10,15) given number is
= (100000 + (60 - 40)) = 100020
Thus, Sum of digits = 1 + 0 + 0 + 0 + 2 + 2 = 5

31. (b) LCM (12, 18, 21, 30)
4 × 3 × 6 × 7 × 5 = 2520
So, required number
$= \frac{2520}{2} = 1260$

32. (d) LCM (10, 16, 24)
→ for square no. split the LCM into its factors
= 5 × 2 × 2 × 2 × 2 × 3
= 5 × 5 × 2 × 2 × 2 × 2 × 3 × 3 = 3600

33. (c) Distance = 5 km
Speed of A = 5/5 km/hr
Time taken by A = $\frac{5}{5} \times 2 = 2\ hours$
→ Speed of B = 3 km/hr
Time taken by B = $\frac{5}{3}\ hours$
→ Speed of C = 2 km/hours
Thus, Time taken by C = $\frac{5}{2}$ hours

$\frac{LCM\ of\ numerator}{HCF\ of\ denominator} = \frac{\frac{5}{2}}{2}, \frac{5}{3}, \frac{5}{2}$

$\frac{10}{5}, \frac{5}{3}, \frac{5}{2}$
LCM = $\frac{10}{1} = 10$
They will meet again after = 10 hours

34. Required number of titles are = $\frac{area\ of\ floor}{area\ of\ tiles}$
Sides of tiles is HCF (1517, 902) = 41
Thus, area of tile = 41 × 41
No. of tile $\frac{1514 \times 902}{41 \times 41}$ = 814

35. (c) Let numbers are A & B respectively
A : B
2x : 3x (given)
LCM = 2 × 3 × x = 6x
According to the question,
6x = 54
x = 9
Thus, A = 2x = 2 × 9 = 18
B = 3x = 3 × 9 = 27
Thus, Sum of numbers
= A + B = 18 + 27 = 45
(3x + 2x) = 5x = 5 × 9 = 45

36. (c) Let numbers are A & B respectively
A : B
4x : 5x (given)
Thus, LCM = 4 × 5 × x = 20x
Thus, 20x = 120
x = 6
Thus, A = 4x = 4 × 6 = 24
B = 5x = 5 × 6 = 30

37. (c) Let numbers are a,b,c
= a,b,c are co-prime numbers = 1
Thus, HCF (a,b,c) = 1
Thus, a × b = 551, b × c = 1073
→ $\frac{a \times b}{b \times c} = \frac{1073}{551} = \frac{37 \times 29}{19 \times 29}$
→ $\frac{a}{c} = \frac{37}{19}$
→ Common 'b' factor is canceled out.
Thus, a = 37, b = 29, c = 19
Thus, Sum of numbers = a + b + c = 37 + 29 + 19
= 85

38. (c) HCF of number =0 7
Thus, Let the numbers are 7x and 7y
LCM = 7xy
7xy = 140
xy = 20

→ Possible co-prime factors of xy
= (1,20), (4,5)
→ Number are between 20 and 45
Thus, Required numbers are = 4 × 7 = 28 and 5 × 7 = 35
→Sum of numbers are = 28 +35 = 63

39. (b) HCF = 15
LCM = 300
1st. number 60
Let 2nd number = x
HCF × LCM = 1xt ×2nd number
15 × 300 = 60 × x
x = 75
Thus, Other number = 75

40. (d) HCF = 23
Thus, Let numbers are
= 23x, 23y
Thus, LCM = 23xy
→ Now given that factor of LCM are 13, 14
Thus, LCM = 23 × 13 × 14
numbers are = 23 × 13
= 299 and 23 × 14
= 322
larger = 322

41. (b) LCM (6, 8, 10) = 3 × 2 × 4 × 5 = 120

42. (b) LCM (4,6,8,9) = 2 × 2 × 3 × 2 × 3 = 72
Thus, Required result should be = 72

43. (b) LCM (3, 4 , 5, 6, 7,8)
3 × 4 × 5 × 7 × 2 = 840
→ divide 10000 by LCM
→ $\frac{10000}{840}$, we get remainder = 760
Now two possibilities are = 10000 – 760 = 9240
or 10000 + (840 - 760) = 10080
So nearest number is = 10080.

44. (a) 1305, 4665, 6905 are three numbers
Greatest number which leaves same reminder in each case. To find this take difference of numbers
→ 1305 4665 6905
- 3360 - 2240
-1120
Thus, 1120 is the no. which leaves the same remainder when divide 1305, 4665, 6905
Thus, Sum of number digit
→ 1 + 1 + 2 + 0 = 4

45. (c) HCF = 4
Thus, Let numbers are 4x and 4y
given pairs → (1 + 8), (2 + 7), (4 + 5), numbers should be co-prime, Hence only 3 pairs

46. (d) 122 – 2 = 120 [Subtract difference
243 – 3 = 240 from number]
HCF = (120, 240) = 120
Thus, Answer = 120

47. (d) HCF = 16
Thus, Let numbers are 16x and 16y
16xy = 480
Xy = 3
Thus, Possible pairs
= (1, 30), (2, 15)
Possible numbers are (16,48), (80,96)
80,96 is the answer in the given

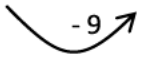
48. (b) 12 – 5 = 7
16 – 9 = 7
Remainder always remains same in such question,
Thus, LCM (12, 16) = 48
Thus, Rquired restult = 48 – 7 = 41

49. (c) 10 – 9 = 1
9 – 8 = 1
8 – 7 = 1
Thus, LCM (10, 9, 8) = 5 × 2 × 9 × 4 = 360
Thus, Required result = 360 – 1 = 359

50. (d) LCM (5,6,8) = 5 × 6 × 4 = 120
→ Required number gives remainder 3 when divided by (5, 6 , 8) and zero remainder when divided by 9
Thus, $\frac{120K+3}{9} = \frac{3k+3}{9}$
at k = 2, $\frac{35+3}{9} \rightarrow Remainder = 0$
we get 120K + 3 = 120 × 2 + 3 243
Which is the required number.

51. (b) LCM (3, 5, 6, 8, 10, 12)
= 3 × 5 × 2 × 4 = 120
Required number is
$\frac{120k+2}{22} = \frac{10k+2}{22}$
at k = 2, $\frac{10K+2}{22}$ → Remainder = 0
The given condition satistics
= 240K + 2 = 240 + 2 = 242

52. (a) 307 – 3 = 304
330 – 7 = 323
→ HCF (304, 323)
304 323



Thus, HCF = 9
The greatest no. is = 19

53. (d) Let HCF = x
LCM = 84x
Thus, given HCF + LCM = 84x + x = 680
85x = 680
x = 8
Thus, HCF = 8
LCM = 84 × 8 = 672
→ 56 × y = 672 × 8
y = $\frac{672\times8}{56}$ = 96

54. (d) Let HCF = x
Thus, LCM = 20x
sum of HCF + LCM = 20x
Sum of HCF + LCM = 2520
= x + 20x = 2520
x = 120
Thus, HCF = 120
LCM = 120 × 20 = 2400
Thus, One number = 480
Let another number = y
Thus, y × 480 = 120 × 2400
y = $\frac{120\times2400}{480}$ = 600

55. (b) LCM (12, 15, 18, 27)
→ 4 × 3 × 5 × 3 × 3 = 540
→ Largest 4 digits number = 9999
On dividing by 540 to number = $\frac{9999}{540}$
remainder is = 279
Thus, required number = 9999- 279
= 9720

56. (d) 3026 – 11 = 3015
5053 – 13 = 5040
→ HCF (3015, 5040)
→ 3015 5040

→ Take difference between numbers. The HCF may7 be difference itself or may a factor of this difference.
HCF = 45

57. (a) 1657 – 6 = 1651
2037 – 5 = 2032
2032 – 1651 → 381 = 127 × 3
HCF = 127

58. (a) Product of two numbers = 1280
HCF = 8
LCM = 1280/8 = 160

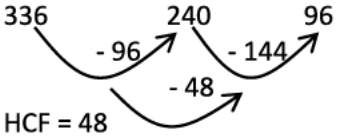
59. (d) LCM (6, 9, 15. 18) = 3 × 2 × 3 × 5 = 90
Required no. gives remainder 4 when divided by (6, 9, 15 and 18) and zero remainder when divided by '7'.
$\frac{90K+4}{7} = \frac{6K+4}{7}$
at K = 4, $\frac{6K+4}{7}$ → remainder = 0
So, number is 90K + 44 = 90 × 4 + 4 = 364
we get 364 whichis the requried no.

60. (b) LCM (16, 24, 30, 36)
= 8 × 2 × 3 × 5 × 3 = 700
Largest 5 digits number is = 99999
divide 99999 by LCM (720)
= $\frac{99999}{720}$, we get remainder = 639
So, The largest 5 digit number which divides completely the given number is
= 99999 - 639 = 99360
Thus, required no. is 99360 + 10 = 99370

61. (b) LCM (16, 20, 24)
= 8 × 2 × 5 × 3
= 2 × 2 × 2 × 2 × 5 × 3 × 5 × 3
multiply by 5 × 3 to make pair
Thus, The least perfect square is = 4 × 4 × 15 × 15 = 3600

62. (b) LCM (25, 50, 75) = 25 × 2 × 3 = 150
→ Reaminder when 43582 divided by 150
$\frac{43582}{150}$, we get remainder = 82
→ Two possibilities are = 43582 – 82 = 43500
or (43582 + (150 - 82)) = 43650
Nearest = 43650

63. (a) HCF (336, 240, 96)



HCF = 48
Thus, Stacks of Enlgish = $\frac{336}{48}$ = 7
Stacks of maths = $\frac{240}{48}$ = 5
Stacks of Science = $\frac{96}{48}$ = 2
Thus, Total no. of stacks = 7 + 5+ 2 = 14

64. (a) Let numbers are = 2x, 3x, 4x
Given, LCM (2 × 3 × 2)x = 12x
12x = 240 (given)

x = 20
Thus, numbers are = 2 × 20 = 40
3 × 20 = 60
4 × 20 = 80
Thus, smallest is 40

65. (c) A + B = 45
A – B $= \frac{45}{9} = 5$
Thus, A = 25, B = 20
Thus, LCM (25, 20) = 5 × 5 × 4 = 100

66. (c) HCF = 17
Thus, Let numbers are
= 17x, 17y
LCM = 17xy = 714 (given)
xy = 42
possible pairs are
(1, 42)(2 , 21) (3 , 14) (6 , 7)
Possible numbers are =
(17 , 714), (34 , 357), (51 , 238), (102 , 119)
but given that both numbers are of three digits
Thus, numbers are = (102 , 119)
Thus, sum of numbers = 102 + 119 = 221

67. (c) HCF = 15
Product of two numbers = 6300
Thus, Let numbers are 15x, 15y
Thus, 15x × 15y = 6300 (given)
xy $= \frac{6300}{15\times15} = 28$
possible pairs are = (1, 28), (7 , 4)
Thus, Total pairs = 2

68. (b) LCM (5, 10, 12, 15)
= 5 × 2 × 6 = 60
Smallest no. divided by (5, 10, 12, 15)
Leaves remainder 2 and when divided by 7 leaves no reaminder is
$\frac{60K+2}{7} - \frac{4K+2}{7}$
at K = 3, $\frac{4K+2}{7} \rightarrow Reaminder = 0$
No. = 60k + 2 = 60 × 3 + 2 = 182

69. (c) LCM (9, 10, 15)
= 3 × 3 × 10 = 90
$\frac{1036}{90}, remainder \rightarrow 46$
Thus, Least number when is subtracted from 1936 which gives remainder 7 when divided by (9, 10, and 15) is = (46 - 7) = 39

70. (a) 18 – 5 = 13
27- 14 = 13
36 – 23 = 13
Thus, LCM (18, 27, 36) = 9 × 2 × 3 × 2 = 108
Required number = 9 × 2 × 3 × 2 = 108
Required number = 108 – 13 = 95

71. (c) LCM (24, 32, 36, 64)
→ 8 × 3 × 4 × 3 × 2 = 576
Required no. is = 576 – 5 = 571

72. (c) Let the number are x and y respectively
Thus, x : y
3 : 4
→ Let 3m : 4 m
→ LCM = 3 × 4 × m = 240 (given)
→ m $= \frac{240}{12} = 20$
Thus, numbers are = A = 3 × 20 = 60
B = 4 × 20 = 80
Thus, Least numbers is = 60

73. (c) Let numbers are m and N
LCM × HCF = 4
LCM × HCF = m × n , But m – n = 2 (given)
so, such value is (6,4) and greater no. = 6

74. (b) HCF = 27
Thus, Let numbers are 27x and 27y respectively
Thus, 27x + 27y = 216 (given)
→ (x + y) $= \frac{216}{27} = 8$
Only possible factorsw are = (1,7), (3,5)

75. (a) Let HCF = x
LCM = 12x (given)
Thus, HCF + LCM = 13x = 403
x = 31
Thus, HCF = 31
LCM = 12 × 31
One number = 93 given
Let other number is = y
Thus, 93 × y = 31 × 31 × 12
y = 4 × 31 = 124

76. (d) Let no. are a and b
a × b = 20736
HCF = 54
We know that (a × b) = (HCF × LCM)
20736 = 54 × LCM
LCM $= \frac{20736}{54} = 384$

77. (a) 12 – 2 = 10
16 – 6 = 10
24 – 14 = 10
LCM (12,16, 24) = 6 × 2 × 4 × 1 = 48

Greatest number of four digits = 9999
Thus, When it is divided by 48 we get remainder = 15
Which completely divides the given number is = 9999- 15 = 9984
Thus, 9984 – 10 = 9974

78.

(a) LCM (15, 20, 35)
= 5 × 3 × 4 × 7 = 420
required number = 420 + 8 = 428

79. (d) Let the numbers are = 3x, 4x resepectively
Thus, HCF = x
LCM = 3 × 4 × x = 12x
given that = HCF × LCM = x × 12x = 2028
$12x^2 = 2028$
$x^2 = 169$
x = 13
Thus, Sum of numbers = 3x + 4x = 7x
= 7x = 7 × 13 = 91

80. (c) HCF = 48
Thus, Let number are 48x & 48y respectively
→ 48x + 48y = 384
$(x + y) = \frac{384}{48} = 8$
So possible pairs of co-prime no. are
(1,7), (3, 5)
Thus, numbers are (48, 336) or (144, 240)
∴ difference between numbers is
= 336- 48
= 288 and 240 – 144 = 96

81. (c) Let numbers be 12x and 12y respectively
LCM = 12 xy
12xy = 1056 (given)
xy = 88
Thus, Possible pairs are (1, 88) (8, 11)
Possible numbers are
= (12, 1056) (96, 132)
given that one number is 132 os other is 96

82. (a) We, know that → (a × b) = (HCF and LCM)
396 × 576 = HCF × 6336
HCF = 36

83. (d) HCF = 8
LCM = 48
One numbmer = 24
Let other number be = y
Thus, 24y = 48 × 9
y = 16

84. (b) HCF = 12
LCM = 336
One number = 84
Let another number be = y
Thus, 84y = 12 × 336
y = 48

85. (d) Product of number = 216
HCF = 6
$LCM = \frac{216}{6} = 36$

86. (a) HCF = 18
LCM = 378
One number = 54
Let another number be = y
$\therefore 54y = 18 \times 378$
$y = \frac{18 \times 378}{54} = 126$

87. (b) LCM (20, 28, 32, 35)
→ 4 × 5 × 7 × 8 = 1120
LCM = (20, 28, 32, 35) = 1120
∴ 1120 divided by 20, 28, 32, and 35 completely
∴ Let x be subtracted from 5834,
∴ 5834 – x = 120
x = 5834 – 1120 = 4714

88. (d) LCM (6, 12, 18)
LCM = 6 × 2 × 3 = 36
→ To find perfect square split the LCM into factor and make pair of factors so that it becomes the square.
→ LCM = 2 × 3 × 2 Δ = 36
2 × 2 × 3 ×3 = 36
→ Which is already a perfect square

89. (c) Let numbers are = 3x & 4x respectively
LCM = 84 (Given)
Thus, LCM of number = common factor (other factors)
= x × 3 × 4 = 12x
12x = 84
x = 7
∴ Numbers are $= 3x = 7 \times 3 = 21$
$4x = 7 \times 4 = 28$
Greater number is 28

90. (b) HCF = 12
∴ Let numbers are 12x & 12y respectively
∴ Given that $(12x + 12y) = 84$

$\rightarrow x + y = \frac{84}{12} = 7$
$\therefore x + y = 7$
$\rightarrow$ Possible factor are
$(1+6), (2+5), (3+4)$
$\therefore$ Total factors are 3

91. (c) HCF = 3
Thus, Let numbers are 3x & 3y respectively
LCM → 3xy = 105 (given)
→ xy = $\frac{105}{3}$ = 35
→ also given = (3x + 3y) = 36
$\therefore \quad x + y = 12$
$\therefore$ we required sum of reciprocals of numbers
$\rightarrow \frac{1}{3x} + \frac{1}{3y} = \frac{x+y}{3xy}$
$\rightarrow \frac{12}{3\times35} = \frac{4}{35}$

92. (a) Let HCF = x
LCM = 44x
given HCF + LCM = 44x + x = 45x
45x = 1125
x = $\frac{1125}{45}$
x = 25
Thus, HCF = 25
LCM = 25 × 44
→ also given that one number = 25
Let another number = y
Thus, 25y = 25 × 25 × 44
y $\frac{25\times25\times44}{25}$ = 1100

93. (c) HCF = 12
Thus, Let numbers are 12x & 12y respectively
LCM → 12xy = 924 (given)
→ xy = 77
→ Possible pairs are
= (1 × 77) (7 × 11)
Thus, Only two pairs are possible

94. (a) LCM = 520
HCF = 4
one number = 52
Let other number is = y
$\therefore 52y = 4 \times 520$
$y = 40$

95. (d) HCF = 96
LCM = 1296
One number = 864
Let other number is = x
$\therefore 864 \times x = 96 \times 1296$
$x = 144$

96. (b) Let HCF = x
$\therefore$ LCM = 4x
given HCF + LCM = 125
$x + 4x = 125$
$5x = 125$
$x = 25$

Thus, HCF = 25
LCM = 4 × 25
given one number = 100
→ Let other number is = y
→ 100y = 25 × 100
y = 25

97. (b) HCF = 13
Let number are 13x & 13y respectively
$\therefore$ Also given $13x \times 13y = 2008$
$13 \times 13 \times xy = 2028$
$xy = \frac{2028}{13\times13} = 12$
$\therefore$ Possible pairs are $= (1, 12)\ (3, 4)$
Only two pairs are possible

98. (d) LCM = 120 (given)
LCM is the product of one common factor and other difference factors of the given numbers.
$\therefore$ factorize the given LCM
= 120
$= \frac{2\times2\times3\times5\times2}{4\ (3\times5\times2)}$
= Here 4 is common factor
(common factor is the HCF of the given number)
Thus, HCF = 4
So, for the given numbers the HCF should be multiple of 4
→ Hence go through options which is not a multiple of 4 is 35.
Hence, answer is 35.

99. (d) LCM (16, 18, 20, 25)
→ 4 × 4 × 9 × 5 × 5 = 3600
→ 3600 will be completely divisible by the given number so, 4 remainder obtained by adding '4' in the LCM
→But it should not leave any remainder when divided by 7
So, given number should be
$\rightarrow \frac{3600K+4}{7} = \frac{25k+4}{7}$

$= \frac{25k+4}{7}$ at k = 5 remainder = 0
at given condition satisfy.
→ No. = 3600K + 4 = 3600 × 5 + 4
= 18000 + 4 = 18004

100. (b) LCM (24, 36, 54)
→ 12 × 2 × 3 × 3 = 216 seconds
They will changes simultaneously after every 216 seconds
$\rightarrow \frac{216}{60} \rightarrow \rightarrow 3\frac{36}{60} = 3\ minute\ 36\ second$
They change 1st at 10:15:00 am
So, again they change at
= 10 : 18 : 36 am

101. (b) For HCF of fractions take HCF of numeratiors and LCM of denominators
HCF of 3,5,6 = 1
LCM of 4,6,7 = 84
Hence, HCF of fractions $= \frac{1}{84}$

102. (a) LCM (200, 300, 360, 450)
→ 10 × 4 × 5 × 3 × 3 = 1800
→ They meet at the starting point after every 1800 seconds.

103. (b) LCM (20 , 30, 40)
→ 4 × 5 × 3 × 2 = 120 minutes
$\rightarrow \frac{120}{60}$ = 2 hours
They 1st. bell at 11 am.
So, the again bell after 2 hours at 11 + 2 = 1 pm.

104. (c) Cows = 945
Sheep = 2475
→ For largest flocks take HCF
→ 945 2475
- 1530

→ For HCF take difference of number HCF will either be the difference or its factor
→ 1530 = 17 × 3 × 3 × 5 × 2
= 17 × 2 × 45
HCF = 45
∴ Maximum animals in each flock
= 45
∴ No. of flocks of cows are
$= \frac{945}{45} = 21$
→ No. of flocks of sheep are
$= \frac{2475}{45} = 55$
Total number of flocks = 21 + 55 = 76
(45, 76)

105. (b) (10, 15, 20)
→ 5 × 2 × 3 × 2 = 60
→ Largest 4 digits number = 9999
divide 9999 by LCM of given number
→ We get remainder = 39
→ So, to divide completely subtracted it from (9999 - 9) = 9960
Thus, 9960 is the largest four digit number which is completely divided by the given numbers (9960)

106. (c)
411 – 3 = 408
684 – 4 = 680
821 – 5 = 816
→ Take HCF of given number to get required greatest number
→ 408 680 816
d_1 d_2
272 136
d_3
136
∴ HCF = 136
take difference of the numbers.

107. (b) HCF = 5
Ratio of numbers is (3: 4) given
So, numbers are = 15 & 20
Thus, LCM = 5 × 3 × 4 = 60

108.
(d) HCF = A (given)
LCM = B
given numbers are x & y respectively.
(Product of numbers is)
→ Prosuct of numbers is
→ Product of LCM × HCF
→ xy = AB
Now → A + B = x + y
(given)
Take cube on both sides
→ $(A + B)^3 = (x + y)^3$
→ $A^3 + B^3 + 3AB\ (A + B)$
$= x^3 + y^3 + 3xy\ (x + y)$
→ $A^3 + B^3 + 3xy\ (x + y)$
$= x^3 + y^3 + 3xy\ (x + y)$
Thus, $A^3 + B^3 = x^3 + y^3$
(Put AB = xy from above)

109. (c) HCF = 44
LCM = 264
Let numbers are = x & y

$\therefore$ given $= \frac{x}{2} = 44$

$x = 88$

Thus, $y = \frac{HCF \times LCM}{x} \rightarrow \frac{44 \times 264}{88} \rightarrow 132$

110. (c) for maximum distance covered LCM (63, 70, 77)

$= 9 \times 7 \times 10 \times 11 = 6930$

111. (d) for greatest number divide to take HCF

HCF

200 320

120 $= 40 \times 3$

(for HCF take difference or take factor of difference)

HCF $= 40$

(for greatest number divided by take LCM)

112. (c) HCF $= (84, 90, 120)$

$\rightarrow$ 84 90 120

(- 6, - 30, - 24)

$\rightarrow 6 \times 4$

HCF $= 6$

$\therefore$ maximum no. of books in each stack $= 6$

113. (b) $729 - 9 = 720$

$901 - 5 = 896$

HCF (720, 896)

720 896

(176)

$\rightarrow 11 \times 16$

$\rightarrow$ HCF $= 16$

114. (a) HCF $= 12$

given ratio of number

$= A : B : C$

$1 : 2 : 3$

Thus, Numbers are $= A = 12$

$B = 12 \times 2 = 24$

$C = 12 \times 3 = 36$

(12, 24, 36)

115. (d) HCF $= z$

given ratio of the numbers $= x : y$

$\rightarrow$ LCM is the product of HCF and other factors

116. (b) Let two consecutive positive even numbers are $(2x + 2)$ and $(2x + 4)$

HCF $= 2$ (given)

common (factor)

Thus, LCM $= 2(x + 1)(x + 2)$

HCF (Other factros)

$\rightarrow$ LCM $= 84$ given

Thus, $2(x + 1)(x + 2) = 84$

$(x + 1)(x + 2) = 42$

$\rightarrow x^2 + 3x + 2 - 42 = 0$

$x^2 + 8x - 5x - 40 = 0$

$\rightarrow x(x + 8) - 5(x + 8) = 0$

$(x - 5)(x + 8) = 42$

$x = 5 \; x = -8$

But numbmers are even, so $(x = 5)$

Thus, Number are $= 2 \times 5 + 2 = 12$

and $2 \times 5 + 4 = 14$

$\rightarrow$ Sum of numbers are $= 12 + 14 = 26$

117. (b) $P = 2^3 . 3^{10} . 5$

$Q = 2^5 3 . 7$

HCF (P,Q) = (common factor of P & Q) $= 2^3$.3

118. (a) Let fraction is $\frac{x}{y}$

$\therefore \frac{x-4}{y+1} = \frac{1}{6}$ (given)

$\rightarrow$ Cross multiply the equation

$\rightarrow 6x - 24 = y + 1$

$6x - y - 25 = 0$ ..... (i)

again, $\frac{x+2}{y+1} = \frac{1}{3}$ (given)

$\rightarrow 3x + 6 = y + 1$

$3x - y + 5 = 0$ ..... (ii)

From equation (i) and (ii)

$6x - y = 25$

$3x - y = -5$

$x = 10$

Thus, $y = 35$

$\therefore \frac{x}{y} = \frac{10}{35} = \frac{2}{7}$

Fraction $= \frac{x}{y} = \frac{2}{7}$

numerator $= 2$

denominator $= 7$

LCM (numerator, denominator)

$\rightarrow 2 \times 7 = 14$

119. (b) HCF of fractional numbers is

$$\frac{HCF \text{ of numerator}}{LCM \text{ of denominator}}$$

$\therefore$ HCF $\left(\frac{2}{3}, \frac{4}{5}, \frac{6}{7}\right)$

$\rightarrow \frac{HCF\ 2,4,6}{LCM\ 3,5,7} = \frac{2}{3 \times 5 \times 7} = \frac{2}{105}$

120. (b) $100 - 2 = 108$

$128 - 2 = 126$

Thus, HCF (108, 126) $= 18$

121. (b) for least or minimum number of canes we

should have maximum capacity canes for required quantity
→ Fro this we take HCF of given quantities.
HCF (21, 42, 63) = 21
∴ Maximum capacity of a cane = 21 liters
∴ Number of canes of cow milk = $\frac{21}{21}$ = 1
∴ Number of canes of toned milk = $\frac{42}{21}$ = 2
Thus, number of canes of double toned milk
$\frac{63}{21}$ = 3
Thus, Total number of canes =
1 + 2 + 3 = 6

122. (c) G.C.D = Greatest common divisor or Highest common factor (HCF)
Let G.C.D = a
Thus, Let number are ax and ay (ax > ay)
LCM = axy
→ LCM = 2 × larger number
Thus, axy = 2 × ax
∴ t = 2
also given that
→ smaller number – G.C.D = 4
→ ay – a = 4
2a – a = 4
a = 4
G.C.D = a = 4
y = 2
Thus, smaller number
= ay → 2 × 4 = 8

123. (d) HCF (GCD) of a, b, number is 12 and a >b >12 (given)
Thus, Smallest value of a & b are (36, 24)

124. (a) HCF of co – prime number is always 1
Thus: Let numbers are = x & y respectively
Product of number = xy
xy = 117 (given)
Thus, Product of number
= LCM × HCF
→ LCM × 1 = 117
LCM = 117

125. (b) HCF = 12
Let numbers are 12x & 12y
∴ Product of two number = 12x . 12y
= 144xy
→ 144xy = 2160
→ xy = 15
Thus, Possible pairs are (1,15), (3,5)
factors should be co-prime. Two pairs are possible.

126. (a) HCF = 27, LCM = 2079 given, one number = 189
Let another number be y
→ Product of numbers = LCM × HCF
Thus, 189 ×y = 27 × 2079
y = 297

127. (c) LCM (6, 7 , 8, 9, 12)
LCM = 3 × 2 × 7 × 4 × 3 = 504
They will toll after every 504 seconds

128. (b) LCM of any fractions is
→ $\frac{LCM\ of\ numerator}{HCF\ denominator}$
→ LCM $\left(\frac{2}{3},\frac{4}{9},\frac{5}{6}\right)$
→ $\frac{LCM\ (2,4,5)}{HCF(3,9,6)} = \frac{20}{3}$ → $\frac{20}{3}$ *Ans.*

129. (c) LCM of 6,9,12 15, and 18 = 180
If 180 is divided by these given number remainder will be 0
→ To leave the same remainder 2
→The number will be = 180 + 2 = 182

130. (c) $x^6 - 1 \rightarrow (x^2)^3 - 1^3$
Using → $a^3 - b^3 = (a - b)(a^2 + b^2 + ab)$
→ $(x^2 - 1)(x^4 + 1 + x^2 \times 1)$
→ $(x^2 - 1)(x^4 + 1 + x^2)$ ..... (i) Again, $x^4 + 2x^3 - 2x - 1$
→ $x^4 - 1 + 2x(x^2 - 1)$
→ $(x^2)^2 - 1^2 + 2x(x^2 - 1)$
→ $(x^2 - 1)(x^2 + 1) + 2x(x^2 - 1)$
→ $(x^2 - 1)(x^2 + 1 + 2x)$ ..... (ii)

131. (b) According to the question,

2300	3500
- 32	- 56
2268	3444

1176
Difference
1176 = 42 × 28
So, factors of 1176 is 42, 28
Thus, HCF of 2268, 3444 is = 42

132. (c) LCM of 12, 16, 18, 21 = 1008
Nex number = 1008 × 2 = 2016
Divisible by all
∴ 16 is added
Sum of digits = 1 + 6 = 7

133. (d) LCM of 5,6,7 & 8 = 840
$\frac{840n+3}{9}$
→ $\frac{3n+3}{9}$
→ Take n = 2
→ 3(2) + 3

$\rightarrow \frac{9}{9}$ = Remainder = 0
Thus, Number is 840n + 3
→ 840(2) + 3 [n = 2] → 168
Sum of digits = 18

134. (a) $\frac{Remainder\ of\ no.}{19} = \frac{47}{19}$
= [Remainder = 9]

135. (c) We know, LCM ×HCF =0 1st. No. × 2nd. No.
Let 1st No. = K
2nd. No. = 4 K
K × 4K = 21 × 84
K = 21
Then no. 21, 84
So, Larger Number = 84

136. (c) According to the question,
LCM = 12 HCF
HCF + 12 HCF = 403
13 HCF = 403
HCF = 31
LCM = 372
Thus, LCM × HCF = a × b
372 × 31 = 93 × b
b = 124

137. (a) According to question,
HCF = 9
→ Then the two numbers will be
9a, 9b
→ 9a + 9b = 99
→ a + b = 11
→ Pair of positive integer
(1, 10), (2, 9), (2, 8), (1 , 7) (5 , 6)

138. (a) Let rati be = x
→ Then two number will be 4x
and 3x
→ LCM of number 120
→ LCM of 4x and 3x = 12x
→ So, 12x = 120
x = 10
→ Therefore, the sum of number is
= 4x + 3x
= 7x
= 7 × 10 = 70

139. (a) LCM of 12, 18, 21, 28 = 252
As, we know greatest four digit number = 9999
= 9999 – 171
The number will be = 9828

140. (a) We know smallest five digit numbers is = 10000
→ LCM of 12, 18, 21 = 252

252 | 10000 | 39
- 756
2440
- 2268
172

Diference → 252 – 172 = 80
→ Number should be = 10000 + 80 = 10080

141. LCM of 30, 36, 80 = 720
Number 720 * K + 11 (k=2)
Then number = 720 × 2 + 11
1440 + 11 = 1451

142. (a) Greatest prime no. = 97
Least prime no. = 2
So, their difference 97 – 2 = 95

143. LCM of 12, 18, 21, 32 = 2016
2016 × K = 2016 × 2 = 4032
(K = 2)
"4032" is the number which is completely divided by 12, 18, 21, 32.

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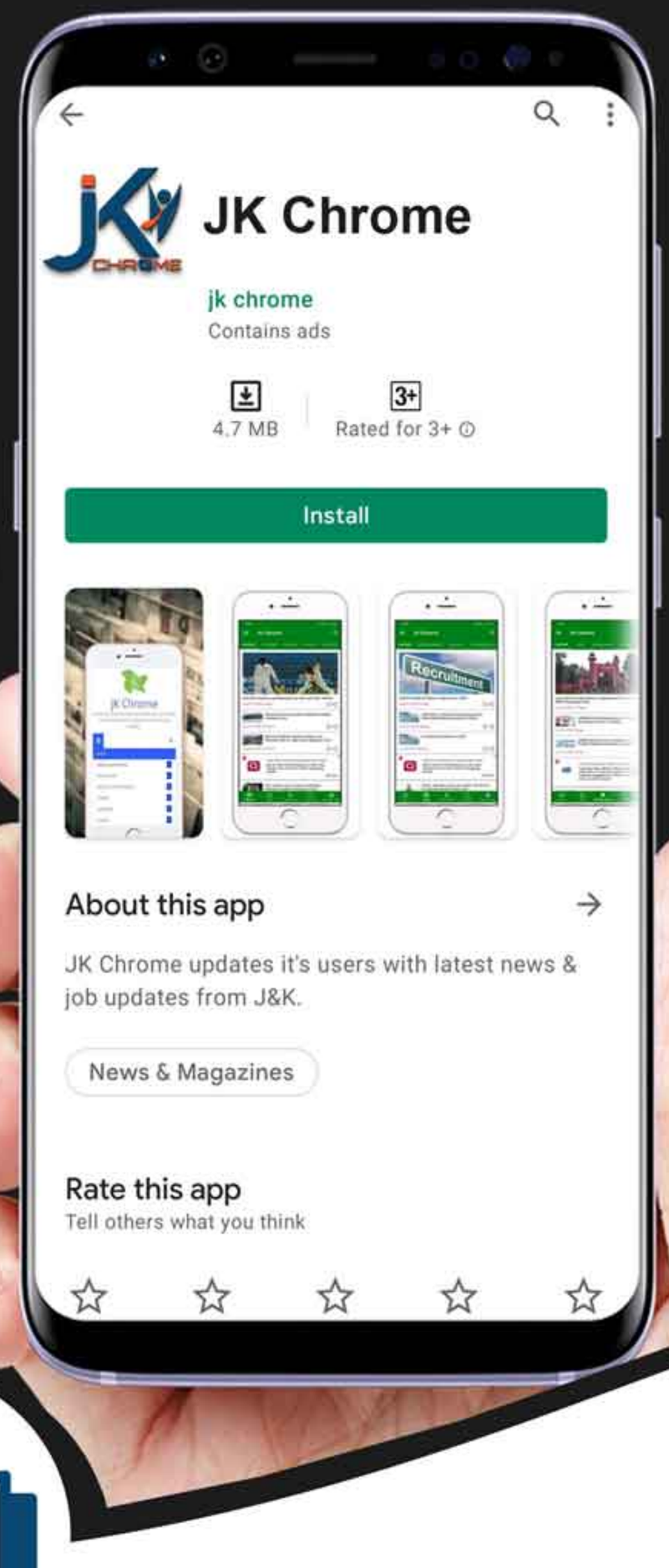

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