





If  $k = 2$ , number =  $(840 \times 2) + 3 = 1683$  which is divisible by 9

Hence 1683 is the least number which when divided by 5, 6, 7 and 8 leaves a remainder 3,

but when divided by 9 leaves no remainder

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### **Solution 2 - Hit and Trial Method**

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Just see which of the given choices satisfy the given conditions

Take 3363. This is not even divisible by 9. Hence this is not the answer

Take 1108. This is not even divisible by 9. Hence this is not the answer

Take 2007. This is divisible by 9.

$2007 \div 5 = 401$ , remainder = 2 . Hence this is not the answer

Take 1683. This is divisible by 9.

$1683 \div 5 = 336$ , remainder = 3

$1683 \div 6 = 280$ , remainder = 3

$1683 \div 7 = 240$ , remainder = 3

$1683 \div 8 = 210$ , remainder = 3

Hence 1683 is the answer

6. The H.C.F. of two numbers is 5 and their L.C.M. is 150. If one of the numbers is 25, then the other is:

A. 30

B. 28

C. 24

D. 20

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**Answer :** Option A

**Explanation :**

Product of two numbers = Product of their HCF and LCM.

Let one number = x

$$\Rightarrow 25 \times x = 5 \times 150$$

$$\Rightarrow x = \frac{5 \times 150}{25} = 30$$

7. 504 can be expressed as a product of primes as

- A.  $2 \times 2 \times 3 \times 3 \times 7 \times 7$       B.  $2 \times 3 \times 3 \times 3 \times 7 \times 7$   
C.  $2 \times 3 \times 3 \times 3 \times 3 \times 7$       D.  $2 \times 2 \times 2 \times 3 \times 3 \times 7$

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**Answer :** Option D

**Explanation :**

It is clear that  $504 = 2 \times 2 \times 2 \times 3 \times 3 \times 7$

8. Which of the following integers has the most number of divisors?

- A. 101                                      B. 99  
C. 182                                      D. 176

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**Answer :** Option D

**Explanation :**

$$99 = 1 \times 3 \times 3 \times 11$$

=> Divisors of 99 are 1, 3, 11, 9, 33 and 99

$$101 = 1 \times 101$$

=> Divisors of 101 are 1 and 101

$$182 = 1 \times 2 \times 7 \times 13$$

=> Divisors of 182 are 1, 2, 7, 13, 14, 26, 91 and 182

$$176 = 1 \times 2 \times 2 \times 2 \times 2 \times 11$$

=> Divisors of 176 are 1, 2, 11, 4, 22, 8, 44, 16, 88, 176

Hence 176 has most number of divisors

9. The least number which should be added to 28523 so that the sum is exactly divisible by 3, 5, 7

and 8 is

A. 41

B. 42

C. 32

D. 37

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**Answer :** Option D

**Explanation :**

LCM of 3, 5, 7 and 8 = 840

$28523 \div 840 = 33$  remainder = 803

Hence the least number which should be added =  $840 - 803 = 37$

10. What is the least number which when doubled will be exactly divisible by 12, 14, 18 and 22 ?

A. 1286

B. 1436

C. 1216

D. 1386

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**Answer :** Option D

**Explanation :**

LCM of 12, 14, 18 and 22 = 2772

Hence the least number which will be exactly divisible by 12, 14, 18 and 22 = 2772

$2772 \div 2 = 1386$

=> 1386 is the number which when doubled, we get 2772

Hence, 1386 is the least number which when doubled will be exactly divisible by 12, 14, 18 and 22 ?

11. What is the greatest possible length which can be used to measure exactly the lengths 8 m, 4 m 20 cm and 12 m 20 cm?

A. 10 cm

B. 30 cm

C. 25 cm

D. 20 cm

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**Answer :** Option D

**Explanation :**

Required length = HCF of 800 cm, 420 cm, 1220 cm = 20 cm

12. Which of the following fraction is the largest ?

- A.  $\frac{11}{12}$                       B.  $\frac{41}{50}$   
C.  $\frac{21}{40}$                       D.  $\frac{5}{6}$

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Here is the answer and explanation

**Answer :** Option A

**Explanation :**

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**Solution 1**  
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LCM of 6, 40, 50 and 12 = 600

$$\frac{5}{6} = \frac{500}{600}$$

$$\frac{21}{40} = \frac{315}{600}$$

$$\frac{41}{50} = \frac{492}{600}$$

$$\frac{11}{12} = \frac{550}{600}$$

Clearly  $\frac{550}{600} = \frac{11}{12}$  is the largest among these fractions

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**Solution 2**  
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LCM of 6, 40, 50 and 12 = 600

$$\frac{5}{6} = .83$$

$$\frac{21}{40} = .52$$

$$\frac{41}{50} = .82$$

$$\frac{11}{12} = .92$$

Clearly  $.92 = \frac{11}{12}$  is the largest among these

13. The product of two 2 digit numbers is 2028 and their HCF is 13. What are the numbers ?

A. 26, 78

B. 39, 52

C. 13, 156

D. 36, 68

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**Answer :** Option B

**Explanation :**

Let the numbers be  $13x$  and  $13y$  ( $\because$  HCF of the numbers = 13)

$$13x \times 13y = 2028$$

$$\Rightarrow xy = 12$$

co-primes with product 12 are (1, 12) and (3, 4) ( $\because$  we need to take only

co-primes with product 12. If we take two numbers with product 12, but not co-prime,

the HCF will not remain as 13)

(Reference : Co-prime Numbers)

Hence the numbers with HCF 13 and product 2028

$$= (13 \times 1, 13 \times 12) \text{ and } (13 \times 3, 13 \times 4)$$

$$= (13, 156) \text{ and } (39, 52)$$

Given that the numbers are 2 digit numbers

Hence numbers are 39 and 52

14. The product of two numbers is 2028 and their HCF is 13. What are the number of such pairs?

A. 4

B. 3

C. 2

D. 1

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**Answer :** Option C

**Explanation :**

Let the numbers be  $13x$  and  $13y$  ( $\because$  HCF of the numbers = 13)

$$13x \times 13y = 2028$$

$$\Rightarrow xy = 12$$

co-primes with product 12 are (1, 12) and (3, 4) ( $\because$  we need to take only

co-primes with product 12. If we take two numbers with product 12, but not co-prime,

the HCF will not remain as 13)

(Reference : Co-prime Numbers)

Hence the numbers with HCF 13 and product 2028

$$= (13 \times 1, 13 \times 12) \text{ and } (13 \times 3, 13 \times 4)$$

$$= (13, 156) \text{ and } (39, 52)$$

So, there are 2 pairs of numbers with HCF 13 and product 2028

15. N is the greatest number which divides 1305, 4665 and 6905 and gives the same remainder in each case. What is the sum of the digits in N?

A. 4

B. 3

C. 6

D. 5

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**Answer :** Option A

**Explanation :**

If the remainder is same in each case and remainder is not given, HCF of the differences of the numbers is the required greatest number

$$6905 - 1305 = 5600$$

$$6905 - 4665 = 2240$$

$$4665 - 1305 = 3360$$

Hence, the greatest number which divides 1305, 4665 and 6905 and gives the same remainder, N

$$= \text{HCF of } 5600, 2240, 3360$$

$$= 1120$$

Sum of digits in N



= Sum of digits in 1120

= 1 + 1 + 2 + 0

= 4

16. A boy divided the numbers 7654, 8506 and 9997 by a certain largest number and he gets same remainder in each case. What is the common remainder?

A. 156

B. 199

C. 211

D. 231

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**Answer :** Option B

**Explanation :**

If the remainder is same in each case and remainder is not given, HCF of the differences of the numbers is the required largest number

$$9997 - 7654 = 2343$$

$$9997 - 8506 = 1491$$

$$8506 - 7654 = 852$$

Hence, the greatest number which divides 7654, 8506 and 9997 and leaves same remainder

= HCF of 2343, 1491, 852

= 213

Now we need to find out the common remainder.

Take any of the given numbers from 7654, 8506 and 9997, say 7654

$$7654 \div 213 = 35, \text{ remainder} = 199$$

17. Find the greatest common divisor of 24 and 16

- A. 6                                      B. 2  
C. 4                                      D. 8

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**Answer :** Option D

**Explanation :**

$$\begin{array}{r} 16) \ 24 \ (1 \\ \underline{16} \\ 8) \ 16 \ (2 \\ \underline{16} \\ 0 \end{array}$$

Hence, greatest common divisor of 24 and 16 = 8

18. 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 again at the starting point ?

- A. 36 minutes 22 seconds                                      B. 46 minutes 22 seconds  
C. 36 minutes 12 seconds                                      D. 46 minutes 12 seconds

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**Answer :** Option D

**Explanation :**

LCM of 252, 308 and 198 = 2772

Hence they all will be again at the starting point after 2772 seconds

or 46 minutes 12 seconds

19. The ratio of two numbers is 4 : 5. If the HCF of these numbers is 6, what is their LCM?

- A. 30                                      B. 60  
C. 90                                      D. 120

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**Answer :** Option D

**Explanation :**

Let the numbers be 4k and 5k

HCF of 4 and 5 = 1

Hence HCF of  $4k$  and  $5k = k$

Given that HCF of  $4k$  and  $5k = 6$

$\Rightarrow k = 6$

Hence the numbers are  $(4 \times 6)$  and  $(5 \times 6) = 24$  and  $30$

LCM of  $24$  and  $30 = 120$

20. What is the HCF of  $2.04$ ,  $0.24$  and  $0.8$  ?

- A. 1                                      B. 2  
C. 0.02                                    D. 0.04

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**Answer :** Option D

**Explanation :**

**Reference :** [How to calculate LCM and HCF for Decimals](#)

Step 1 : Make the same number of decimal places in all the given numbers by suffixing

zero(s) in required numbers as needed.

**$\Rightarrow 2.04, 0.24$  and  $0.80$**

Step 2 : Now find the HCF of these numbers without decimal.

**$\Rightarrow$  HCF of  $204, 24$  and  $80 = 4$**

Step 3 : Put the decimal point in the result obtained in step 2 leaving as many digits

on its right as there are in each of the numbers.

i.e., here, we need to put decimal point in the result obtained in step 2 leaving

two digits on its right.

**$\Rightarrow$  HCF of  $2.04, 0.24$  and  $0.8 = 0.04$**

21. If HCF of two numbers is  $11$  and the product of these numbers is  $363$ , what is the the greater number?

- A. 9    B. 22  
C. 33     D. 11

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**Answer :** Option C

**Explanation :**

Let the numbers be  $11a$  and  $11b$

$$11a \times 11b = 363$$

$$\Rightarrow ab = 3$$

co-primes with product 3 are  $(1, 3)$

(Reference : Co-prime Numbers)

Hence the numbers with HCF 11 and product 363

$$= (11 \times 1, 11 \times 3)$$

$$= (11, 33)$$

Hence numbers are 11 and 33

The greater number = 33

22. What is the greatest number which on dividing 1223 and 2351 leaves remainders 90 and 85 respectively?

A. 1133

B. 127

C. 42

D. 1100

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**Answer :** Option A

**Explanation :**

Required number

$$= \text{HCF of } (1223 - 90) \text{ and } (2351 - 85)$$

$$= \text{HCF of } 1133 \text{ and } 2266$$

$$= 1133$$

23. What is the least multiple of 7 which leaves a remainder of 4 when divided by 6, 9, 15 and 18 ?

A. 364

B. 350

C. 343

D. 371

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**Answer :** Option A

**Explanation :**

LCM of 6, 9, 15 and 18 = 90

Required Number =  $(90k + 4)$  which is a multiple of 7

Put  $k = 1$ . We get number as  $(90 \times 1) + 4 = 94$ . But this is not a multiple of 7

Put  $k = 2$ . We get number as  $(90 \times 2) + 4 = 184$ . But this is not a multiple of 7

Put  $k = 3$ . We get number as  $(90 \times 3) + 4 = 274$ . But this is not a multiple of 7

Put  $k = 4$ . We get number as  $(90 \times 4) + 4 = 364$ . This is a multiple of 7

Hence 364 is the answer.

24. Three numbers which are co-prime to each other are such that the product of the first two is 119 and that of the last two is 391. What is the sum of the three numbers?

A. 47

B. 43

C. 53

D. 51

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**Answer :** Option A

**Explanation :**

Since the numbers are co-prime, their HCF = 1

Product of first two numbers = 119

Product of last two numbers = 391

The middle number is common in both of these products.

Hence if we take HCF of 119 and 391, we get the common middle number

HCF of 119 and 391 = 17

=> Middle Number = 17

First Number =  $119/17 = 7$

Last Number =  $391/17 = 23$

Sum of the three numbers =  $7 + 17 + 23 = 47$

25. Reduce  $\frac{4329}{4662}$  to its lowest terms

A.  $\frac{7}{13}$

B.  $\frac{13}{17}$

C.  $\frac{13}{14}$

D.  $\frac{7}{12}$

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Here is the answer and explanation

**Answer :** Option C

**Explanation :**

We need to find out HCF of 4329 and 4662

$$\begin{array}{r}
 4329) \ 4662 \ (1 \\
 \underline{4329} \\
 333) \ 4329 \ (13 \\
 \underline{4329} \\
 0
 \end{array}$$

Hence, HCF of 4329 and 4662 = 333

$$4329 \div 333 = 13$$

$$4662 \div 333 = 14$$

Hence  $\frac{4329}{4662} = \frac{13}{14}$

26. What is the greatest number which divides 24, 28 and 34 and leaves the same remainder in each case?

A. 1

B. 2

C. 3

D. 4

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Here is the answer and explanation

**Answer :** Option B

**Explanation :**

If the remainder is same in each case and remainder is not given, HCF of the differences of the numbers is the required greatest number

$$34 - 24 = 10$$

$$34 - 28 = 6$$

$$28 - 24 = 4$$



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**Answer :** Option D

**Explanation :**

The HCF of a group of numbers will be always a factor of their LCM

HCF is the product of all common prime factors using the least power of each common prime factor.

LCM is the product of highest powers of all prime factors

HCF of the two numbers = 23

=> Highest Common Factor in the numbers = 23

Since HCF will be always a factor of LCM, 23 is a factor of the LCM.

Other two factors in the LCM are 13 and 14.

Hence factors of the LCM are 23, 13, 14

So, numbers can be taken as  $(23 \times 13)$  and  $(23 \times 14)$

= 299 and 322

Hence, largest number = 322

[\[A more detailed explanation ...](#)

[we can take the numbers as  \$\(23 \times 13\)\$  and  \$\(23 \times 14\)\$  because of the following reasons](#)

[HCF is given as 23.](#)

[The HCF of a group of numbers will be always a factor of their LCM.](#)



Hence, 23 is a factor of the LCM

Given that other two factors of the LCM are 13 and 14.

Hence factors of the LCM are 23, 13, 14

Now assume that we take the numbers are  $(23 \times 13)$  and  $(23 \times 14)$ .

If we write the numbers as the product of prime factors,

first number =  $(23 \times 13)$

second numbers =  $(23 \times 14) = (23 \times 2 \times 7)$

HCF = product of all common prime factors using the least power of each common prime factor

= 23

LCM is the product of highest powers of all prime factors

=  $23 \times 13 \times 2 \times 7 = 23 \times 13 \times 14$

Clearly we get HCF as 23 and the factors in the LCM as 13, 14 and 23.

Hence every conditions are satisfied.

30. What is the smallest number which when diminished by 12, is divisible 8, 12, 22 and 24?

A. 276

B. 264

C. 272

D. 268

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**Answer :** Option A

**Explanation :**

Required Number =  $(\text{LCM of } 8, 12, 22 \text{ and } 24) + 12 = 264 + 12 = 276$

31. What is the HCF of  $\frac{1}{3}$ ,  $\frac{2}{3}$  and  $\frac{1}{4}$  ?

A.  $\frac{2}{3}$

B.  $\frac{1}{3}$

C.  $\frac{1}{4}$

D.  $\frac{1}{12}$

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**Answer :** Option D

**Explanation :**

$$\text{HCF for fractions} = \frac{\text{HCF of Numerators}}{\text{LCM of Denominators}}$$

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$$\text{HCF of } \frac{1}{3}, \frac{2}{3} \text{ and } \frac{1}{4} = \frac{\text{HCF}(1, 2, 1)}{\text{LCM}(3, 3, 4)} = \frac{1}{12}$$

32. What is the LCM of  $\frac{2}{3}$ ,  $\frac{5}{6}$  and  $\frac{4}{9}$  ?

A.  $\frac{3}{10}$

B.  $\frac{3}{20}$

C.  $\frac{10}{3}$

D.  $\frac{20}{3}$

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**Answer :** Option D

**Explanation :**

$$\text{LCM for fractions} = \frac{\text{LCM of Numerators}}{\text{HCF of Denominators}}$$

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$$\text{LCM of } \frac{2}{3}, \frac{5}{6} \text{ and } \frac{4}{9} = \frac{\text{LCM}(2, 5, 4)}{\text{HCF}(3, 6, 9)} = \frac{20}{3}$$