



Date : 6th Jan 2024

Quantitative Aptitude - Number System

English

Q:1 The L.C.M and H.C.F of two numbers are 154 and 5. If one of the numbers is 11 then, find the $\frac{1}{10}$ th of another number.

1. 7
2. 11
3. 15
4. 13

Q:2 If a seven digit number 4853x44 is divisible by 8 then, find the value of 2x.

1. 4
2. 8
3. 6
4. 10

Q:3 The sum of the reciprocals of all the factors of 60.

1. 30
2. 20
3. $\frac{45}{9}$
4. None of these

Q:4 What is H.C.F. of $\frac{5}{13}$, $\frac{7}{8}$, $\frac{15}{2}$?

1. $\frac{1}{104}$
2. $\frac{1}{91}$
3. 5
4. $\frac{5}{104}$

Q:5 Find the remainder of 4^{19} divided by 3.

1. 1
2. 4
3. 19
4. 6

Q:6 Find the HCF of $\frac{54}{17}$, $\frac{3}{16}$ and $\frac{60}{17}$.

1. $\frac{3}{272}$
2. $\frac{4}{131}$
3. $\frac{2}{3}$
4. 1

Q:7 Find the difference between total number of odd factors and the total number of even factors of number 120.

1. 12
2. 5
3. 7
4. 8

Q:8 If the L.C.M. and H.C.F. of two numbers are 98 and 16, respectively, and one of the numbers is 49, then find the other number.

1. 25
2. 26
3. 32
4. 40

Q:9 What will be the remainder when 849562 is divided by 15?

1. 9
2. 7
3. 10
4. 1

Q:10 Find the smallest three-digit number that is exactly divisible by 12, 45, and 24.

1. 120
2. 240
3. 360
4. 180



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Answer Key

1. (1)	2. (3)	3. (4)	4. (1)	5. (1)
6. (1)	7. (4)	8. (3)	9. (2)	10. (3)

Answers and Solutions

Q:1 The correct answer is **Option 1** i.e. **7**.

$$\text{H.C.F} \times \text{L.C.M} = a \times b$$

$$154 \times 5 = 11 \times b$$

$$14 \times 5 = b$$

$$b = 70$$

Hence, the other number is 70 and $1/10$ th of the other number is 7.

Q:2 The correct answer is **Option 3** i.e. **6**.

Given seven digit number is 4853x44

We know that,

Divisibility rule of 8 :- if the last three numbers are zero or divisible by 8, the whole number is divisible by 8

last three digits are x44

if $x = 1$ then, the digit will be 144, which is not divisible by 8

if $x = 2$ then, the digit will be 244, which is not divisible by 8

if $x = 3$ then, the digit will be 344, which is divisible by 8

So, the value of $x = 3$

Hence, the value of $2x = 6$

Q:3 The correct answer is **option 4** i.e. **None of these**.

Formulae:

The sum of the reciprocal of all factors = (Sum of all factor/number)

Factors of 60 are :

$$\Rightarrow 60 = (2^2 \times 3 \times 5)$$

$$\Rightarrow \text{Sum of factors of } 60 = (2^0 + 2^1 + 2^2) \times (3^0 + 3^1) \times (5^0 + 5^1)$$

$$\Rightarrow (1 + 2 + 4) \times (1 + 3) \times (1 + 5)$$

$$\Rightarrow (7) \times (4) \times (6)$$

$$\Rightarrow 168$$

$$\Rightarrow \text{Sum of reciprocals of the number of factors of a number} = 168/60$$

$$\Rightarrow 14/5$$

Q:4 The correct answer is **option 1** i.e. $1/104$

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

$$\text{HCF of numerators} = \text{HCF of } (5, 7, 15)$$

$$\Rightarrow 1$$

$$\text{LCM of the denominators} = \text{LCM of } (13, 8, 2)$$

$$\Rightarrow 104$$

$$\text{HCF of fractions} = 1/104$$

Q:5 The correct answer is **option 1** i.e. **1**.

Concept used:

If 4^n when divided by 3 gives remainder 1 when n is odd number.

Calculations :

Let 4^1 divided by 3 gives remainder 1

Similarly, if $4^3 = 64$, divided by 3, gives remainder 1

Using the given concept, we conclude that

$\Rightarrow 4^{19}$ where $n = 19$ (an odd number), divided by 3 gives the remainder 1.

Q:6 The correct answer is **option 1** i.e. **3/272**.

Concept used:

To find the HCF of the fractions = HCF of numerators of all numbers/LCM of denominators of all numbers

Calculations:

$$\text{HCF of } 54/17, 3/16 \text{ and } 60/17$$

$$\Rightarrow \text{HCF of } 54, 3 \text{ and } 60 = 3$$

$$\Rightarrow \text{LCM of } 17, 16 \text{ and } 17 = 17 \times 16 = 272$$

$$\text{Required HCF} = 3/272$$

Q:7 The correct answer is **option 4** i.e. **8**.

Number = 120

Factors of 120 = 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120

Or,

By the prime factorization of 120:

$$120 = 2^3 \times 3^1 \times 5^1$$

$$\text{Total number of factors} = (3 + 1)(1 + 1)(1 + 1) = 16$$

$$\text{Odd factors} = (1 + 1)(1 + 1) = 4$$

$$\text{So, even factor} = 16 - 4 = 12$$

$$\text{Difference} = 12 - 4 = 8$$

Q:8 The correct answer is **Option 3** i.e. **32**.

We know that if a and b are two numbers,

$$\text{L.C.M} \times \text{H.C.F} = a \times b$$

$$98 \times 16 = 49 \times b$$



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$$2 \times 16 = b$$

$$b = 32$$

Hence, another number is 32

Q:9 The correct answer is **Option 2** i.e. 7.

Divisibility rule of 15: A numeral is divisible by 15 if it is divisible by both 3 and 5.

Divisibility rule of 3: If the sum of digits of a number is a multiple of 3, the number will be completely divisible by 3.

Divisibility rule of 5: If the last number is either 0 or 5, the entire number is divisible by 5.

The number 849562 is not completely divisible by either 3 or 5

But if we subtract 7 from the number, the number becomes = $849562 - 7 = 849555$

Then, the number is divisible by both 5 and 3

So, 7 will be the remainder if 849562 is divided by 15

Q:10 The correct answer is **option 3** i.e. 360.

Let us factorize the given numbers first:

$$12 = 2 \times 2 \times 3$$

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

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

Hence,

$$\text{LCM of the numbers} = 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 360$$

So, the smallest three-digit number that is exactly divisible by 12, 45, and 24 = 360