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HCF and LCM of Numbers Questions for CDS & SSC Exams.

HCF and LCM of numbers Quiz 2

Directions: Kindly study the following Questions carefully and choose the right answer:

1. Find the H.C.F. and L.C.M. of 0.63, 1.05 and 2.1.

- A. 0.21 and 6.30 B. 1.05 and 6.30 C. 2.1 and 0.63 D. 0.63 and 1.05

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

- A. 205 B. 315 C. 455 D. 505

3. Find the largest number which divides 62, 132 and 237 to leave the same remainder in each case.

- A. 15 B. 25 C. 35 D. 55

4. Find the least number which when divided by 5, 6, 7 and 8 leaves a remainder 3, but when divided by 9 leaves no remainder.

- A. 1683 B. 2312 C. 1432 D. 798

5. Find the greatest possible length which can be used to measure exactly the lengths 4m 95cm, 9m and 16m 65cm.

- A. 15 cm B. 35 cm C. 45 cm D. 54 cm

6. If a and b be positive integers, then what is $\text{HCF} \left(\frac{a}{\text{HCF}(a, b)}, \frac{b}{\text{HCF}(a, b)} \right)$ equal to?

- A. a B. b C. 1 D. $\frac{a}{\text{HCF}(a, b)}$

7. For any integer n, what is $\text{HCF}(22n + 7, 33n + 10)$ equal to?

- A. n B. 1 C. 11 D. None of these

8. The greatest five digit number which is exactly divisible by each one of the number 12, 18, 21 and 28 is

A. 98286

B. 92888

C. 99284

D. 99792

9. The ratio of two number is 3 : 4 and their L.C.M is 120. The sum of number is

A. 70

B. 35

C. 140

D. 105

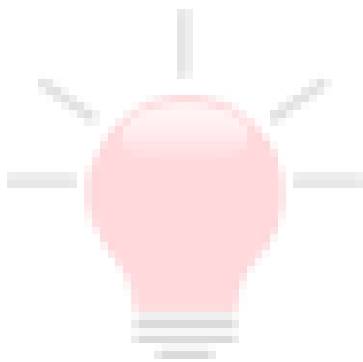
10. The greatest number which can divide 1356, 1868 and 2764 leaving the same remainder 12 in each case is

A. 64

B. 124

C. 156

D. 260



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Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	D	C	A	C	C	B	D	A	A

Explanations:

1. Making the same number of decimal places, the given numbers are 0.63, 1.05 and 2.10.

Without decimal places, these numbers are 63, 105 and 210.

Now, H.C.F of 63, 105 and 210 is 21.

∴ H.C.F, of 0.63, 1.05 and 2.1 is 0.21.

L.C.M. 63, 105 and 210 is 630

∴ L.C.M. of 0.63, 1.05 and 2.1 is 6.30.

Hence, option A is correct.

2.

$$\begin{array}{r} 3 \overline{) 6 - 7 - 8 - 9 - 12} \\ 2 \overline{) 2 - 7 - 8 - 3 - 4} \\ 2 \overline{) 1 - 7 - 4 - 3 - 2} \\ | 1 - 7 - 2 - 3 - 1 \end{array}$$

$$2 \overline{) 2 - 7 - 8 - 3 - 4}$$

$$2 \overline{) 1 - 7 - 4 - 3 - 2}$$

$$| 1 - 7 - 2 - 3 - 1$$

∴ L.C.M. = $3 \times 2 \times 2 \times 7 \times 2 \times 3 = 504$.

Hence, required number = $(504 + 1) = 505$.

Hence, option D is correct.

3. Required number = H.C.F. of $(132 - 62)$, $(237 - 132)$ and $(237 - 62)$
= H.C.F. = 70, 105 and 175 = 35.

Hence, option C is correct.

4. L.C.M. of 5, 6, 7, 8 = 840.

∴ Required number is of the form $840k + 3$.

Least value of k for which $(840k + 3)$ is divisible by 9 is $k = 2$.

∴ Required number = $(840 \times 2 + 3) = 1683$.

Hence, option A is correct.

5. Required length = H.C.F. of 495 cm, 900 cm, and 1665 cm.

$$495 = 3^2 \times 5 \times 11, \quad 900 = 2^2 \times 3^2 \times 5^2, \quad 1665 = 3^2 \times 5 \times 37.$$

∴ H.C.F. = $3^2 \times 5 = 45$.

Hence, required length = 45cm.

Hence, option C is correct.

6. Let the two positive integers be $a = 2$, and $b = 3$

Now, on putting the respective values of a & b in the given equation, we get

$$\therefore \text{HCF} \left(\frac{2}{\text{HCF}(2, 3)}, \frac{3}{\text{HCF}(2, 3)} \right)$$

$$\text{HCF} \left(\frac{2}{1}, \frac{3}{1} \right) \Rightarrow \text{HCF}(2, 3) = 1.$$

Hence, option C is correct.

7. HCF of $(22n + 7, 33n + 10)$ is always 1.

On placing different values in the given equation; $n = 1, 2, 3, \dots$

We get,

$$\text{For } n = 1, \text{HCF}(22n + 7, 33n + 10) = (29, 43) \Rightarrow \text{HCF} = 1$$

$$\text{For } n = 2, \text{HCF}(22n + 7, 33n + 10) = (51, 76) \Rightarrow \text{HCF} = 1$$

$$\text{For } n = 3, \text{HCF}(22n + 7, 33n + 10) = (73, 109) \Rightarrow \text{HCF} = 1.$$

Hence, option B is correct.

8. LCM of 12, 18, 21 and 28 = 252

When we divide greatest five digit no. 99,999 by 252, we get 207 remainder.

Now, subtracting 207 by 99,999, we get

$$= 99999 - 207 = 99,792.$$

99,792 is largest five digit number divisible by 12, 18, 21 and 28.

Hence, option D is correct.

9. Let's number be x and y

$$= \frac{x}{y} = \frac{3}{4} \Rightarrow \frac{x}{3} = \frac{y}{4} \Leftrightarrow \frac{40x}{120} = \frac{30y}{120}$$

From the equation, we get $x = 30$, $y = 40$

$$\text{Sum of } x \text{ and } y = 30 + 40 = 70.$$

Hence, option A is correct.

10. Required number = HCF of $(1356 - 12)$, $(1868 - 12)$, $(2764 - 12)$

$$\text{HCF of } 1344, 1856 \text{ and } 2752 = 64.$$

Hence, option A is correct.



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