

CLASS 7

MATHS

EXTRA QUESTIONS

Extra Questions for Class 7 Maths Chapter 11: Finding Common Ground – HOTS

Fresh HOTS practice questions for Class 7 Maths Chapter 11 "Finding Common Ground", testing HCF, LCM, prime factorisation, and real-world applications with new numbers not found in the textbook.

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Q1.

Find the HCF and LCM of 96 and 120 using prime factorisation, and verify that $\text{HCF} \times \text{LCM} = \text{product of the numbers}$.

Answer: $96 = 2^5 \times 3$, $120 = 2^3 \times 3 \times 5$. $\text{HCF} = 2^3 \times 3 = \mathbf{24}$. $\text{LCM} = 2^5 \times 3 \times 5 = \mathbf{480}$. Check: $24 \times 480 = 11,520$, and $96 \times 120 = 11,520$ — verified.

Q2.

Three temple bells toll at intervals of 15, 20, and 25 minutes respectively. If all three toll together at 8:00 am, when will they next toll together?

Answer: They toll together again after $\text{LCM}(15, 20, 25)$ minutes. $15 = 3 \times 5$, $20 = 2^2 \times 5$, $25 = 5^2$, so $\text{LCM} = 2^2 \times 3 \times 5^2 = 300$ minutes = 5 hours. Next together at **1:00 pm**.

Q3. Assertion-Reason

Assertion (A): The HCF of two co-prime numbers is always 1.

Reason (R): Co-prime numbers share no common factor other than 1.

Answer: Both A and R are true, and R correctly explains A.

Q4.

Find the smallest number which, when divided by 18, 24, and 32, leaves a remainder of 5 in each case.

Answer: First find $\text{LCM}(18, 24, 32)$: $18 = 2 \times 3^2$, $24 = 2^3 \times 3$, $32 = 2^5$, so $\text{LCM} = 2^5 \times 3^2 = 288$. The required number is $288 + 5 = \mathbf{293}$.

Q5. Spot the error

A student found the HCF of 48 and 180 as follows: $48 = 2^4 \times 3$, $180 = 2^2 \times 3^2 \times 5$, and wrote $\text{HCF} = 2^4 \times 3^2 = 144$. Identify and correct the error.

Answer: This is incorrect — HCF must use the lowest (not highest) power of each common prime. Common primes are 2 and 3; lowest powers are 2^2 and 3^1 . Correct $\text{HCF} = 2^2 \times 3 = \mathbf{12}$.

Q6.

Two ropes of length 72 m and 96 m are to be cut into pieces of equal length with no wastage. Find the maximum possible length of each piece and the total number of pieces obtained.

Answer: Maximum piece length = $\text{HCF}(72, 96)$. $72 = 2^3 \times 3^2$, $96 = 2^5 \times 3$, so $\text{HCF} = 2^3 \times 3 = \mathbf{24\ m}$. Pieces:

$72 \div 24 = 3$ and $96 \div 24 = 4$, total = **7 pieces**.

Q7.

Two numbers have HCF = 12 and LCM = 72. Both numbers lie between 20 and 40. Find the two numbers.

Answer: The numbers are $12a$ and $12b$ where a, b are co-prime and $a \times b = 72 \div 12 = 6$. Co-prime pairs multiplying to 6: (1,6) and (2,3). Using (2,3): $12 \times 2 = 24$ and $12 \times 3 = 36$, both between 20 and 40. The numbers are **24 and 36**.

Q8.

Find the HCF of 84, 90, and 120 using prime factorisation.

Answer: $84 = 2^2 \times 3 \times 7$, $90 = 2 \times 3^2 \times 5$, $120 = 2^3 \times 3 \times 5$. Common primes at lowest powers: $2 \times 3 = 6$.

Q9.

A trader has 391 kg of rice and 425 kg of wheat. He wants to pack both into bags of equal weight (the maximum possible), without mixing the two grains. Find the weight of each bag and the total number of bags needed.

Answer: Maximum bag weight = HCF(391, 425). $391 = 17 \times 23$, $425 = 5^2 \times 17$, so HCF = **17 kg**. Bags: $391 \div 17 = 23$ (rice) + $425 \div 17 = 25$ (wheat) = **48 bags** in total.

Q10. True or False

“If two numbers are co-prime, their LCM is always less than their product.”

Answer: False. For co-prime numbers, the LCM is always exactly equal to their product (since they share no common factors to cancel out).

See also: [NCERT Solutions for Class 7 Maths Chapter 11](#)

Revision Notes: [Revision Notes for Class 7 Maths Chapter 11](#)

See the full book: [NCERT Books for Class 7 Maths Part 2](#)