

**REAL NUMBER
TEST PAPER- 1**



SECTION 1- EACH QUESTION HAS 2 MARKS

1. Consider the numbers 4^n , where n is a natural number. Check whether there is any value of n for which 4^n ends with the digit zero.
2. Find the HCF of 96 and 404 by the prime factorisation method. Hence, find their LCM.
3. Find the HCF and LCM of 6, 72 and 120, using the prime factorisation method.
4. Find the LCM and HCF of the pair of integers 336 and 54 and verify that $\text{LCM} \times \text{HCF} = \text{product of the two numbers}$.
5. Given that $\text{HCF}(306, 657) = 9$, find $\text{LCM}(306, 657)$.
6. Explain why $7 \times 11 \times 13 + 13$ and $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$ are composite numbers.
7. There is a circular path around a sports field. Sonia takes 18 minutes to drive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?
8. Prove that $\sqrt{3}$ is irrational.
9. Show that $5 - \sqrt{3}$ is irrational.
10. Show that $3\sqrt{2}$ is irrational.
11. Prove that $3 + 2\sqrt{5}$ is irrational.
12. Prove that $\frac{1}{\sqrt{2}}$ is irrational.

SECTION 2- EACH QUESTION HAS 3 TO 4 MARKS



1. Find the HCF and LCM of 612 and 1314 using prime factorisation method.
2. Find the HCF and LCM of 108, 120 and 252 using prime factorisation method.
3. Find the largest number which divides 245 and 1037, leaving remainder 5 in each case.
4. Find the least number which when divided by 35, 56 and 91 leaves the same remainder 7 in each case.
5. Find the smallest number which when divided by 28 and 32 leaves remainders 8 and 12 respectively.
6. Find the greatest number of four digits which is exactly divisible by 15, 24 and 36.
7. Find the least number which should be added to 2497 so that the sum is exactly divisible by 5, 6, 4 and 3
8. Find the greatest possible length which can be used to measure exactly the lengths 7 m, 3 m 85 cm and 12 m 95 cm.
9. Three measuring rods are 64 cm, 80 cm and 96 cm in length. Find the least length of cloth that can be measured an exact number of times, using any of the rods.
10. Prove that $\sqrt{5}$ is irrational.
11. Prove that $(\sqrt{2} + \sqrt{3})$ is irrational.
12. Prove that $(4 - 5\sqrt{2})$ is an irrational number.