# Class 10 Mathematics Worksheet

## Chapter 1: Real Numbers

### Section A: Multiple Choice Questions (1 Mark Each)

1. The HCF of 144 and 198 is:
   (a) 6
   (b) 9
   (c) 18
   (d) 36

2. The LCM of 15, 25, and 40 is:
(a) 600
(b) 300
(c) 1200
(d) 1500

3. The decimal expansion of 1/7 is:
(a) Terminating
(b) Non-terminating and repeating
(c) Non-terminating and non-repeating
(d) None of these

4. If two positive integers a and b are expressed as a = $2^3 \times 3^2 \times 5$ and b = $2^2 \times 3 \times 5^2$, then LCM(a, b) is:
(a) $2^3 \times 3^2 \times 5^2$
(b) $2^2 \times 3^2 \times 5$
(c) $2^3 \times 3 \times 5^2$
(d) $2^2 \times 3 \times 5$

5. The square root of 2 is:
(a) Rational
(b) Irrational
(c) An integer
(d) None of these

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## Section B: Short Answer Type Questions (2 Marks Each)

1. Find the HCF of 30 and 75 using the prime factorization method.

2. Write the decimal expansions of 1/2 and 1/3. Are they terminating or non-terminating?

3. Use Euclid's division algorithm to find the HCF of 135 and 225.

4. Prove that √3 is an irrational number.

5. Find the LCM of 36 and 48 by the prime factorization method.

## Section C: Short Answer Type Questions (3 Marks Each)

1. Show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m.

2. Explain why every positive integer is of the form 4q + r, where r = 0, 1, 2, 3.

3. If the HCF of 65 and 117 is expressible in the form 65m - 117, find the value of m.

4. Find the HCF and LCM of 24, 36, and 60 using the prime factorization method.

5. Prove that √2 is irrational by the method of contradiction.

## Section D: Long Answer Type Questions (4 Marks Each)

1. Using Euclid's division algorithm, find the HCF of 4052 and 12576, and express it as a linear combination of 4052 and 12576.

2. Prove that the sum of a rational and an irrational number is always irrational.

3. If d is the HCF of 84 and 90, find integers x and y such that d = 84x + 90y.

4. Prove that any odd positive integer is of the form 4q + 1 or 4q + 3, where q is an integer.

5. Using the Fundamental Theorem of Arithmetic, find the unique prime factorization of 720.

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