Class 10 Science – Worksheet 1

Chapter 1: Real Numbers

Section A: Multiple Choice Questions (1 Mark Each)

1. The HCF of 96 and 404 is:

(a) 2

(b) 4

(c) 8

(d) 12

2. The LCM of 6, 72, and 120 is:

(a) 240

(b) 720

(c) 360

(d) 480

3. The decimal expansion of a rational number can be:

(a) Terminating

(b) Non-terminating but repeating

(c) Both (a) and (b)

(d) Neither (a) nor (b)

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) $2^2 \times 3^2 \times 5^2$

(c) $2^3 \times 3 \times 5$

(d) $2^2 \times 3 \times 5$

5. What is the value of √5 to 3 decimal places?

(a) 2.235

(b) 2.236

(c) 2.237

(d) 2.238

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

1. Write the decimal expansions of 5/8 and 7/20. Are they terminating or non-terminating?

2. Find the HCF and LCM of 24 and 36 using the prime factorization method.

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

4. Use Euclid's division algorithm to find the HCF of 4052 and 12576.

5. Prove that 3 + 2√5 is an irrational number.

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

1. Explain why every positive integer is of the form 6q + r, where q is some integer and r = 0, 1, 2, 3, 4, 5.

2. Using Euclid's division lemma, show that the square of any positive integer is either of the form 3m or 3m + 1.

3. Find the LCM and HCF of 60, 72, and 120 by the prime factorization method.

4. Prove that (3 + √5)/2 is irrational.

5. The product of two consecutive positive integers is divisible by 2. Justify this statement.

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

1. Prove that the sum or difference of a rational and an irrational number is always irrational.

2. Using Euclid's division algorithm, find the HCF of 135 and 225 and verify the result by expressing it as a linear combination of 135 and 225.

3. If d is the HCF of 56 and 72, find integers x and y such that $d = 56x + 72y$.

4. Prove that the square root of 2 is irrational.

5. Show that any positive odd integer is of the form $4q + 1$ or $4q + 3$, where q is some integer.