

Class 9 – Mathematics Test Paper

Chapter 1: Number Systems

Section A: (1 mark each) [5 Marks]

1. What is the value of $\sqrt{121}$?
2. Write the decimal expansion of $1/7$ up to 3 decimal places.
3. What type of number is $\sqrt{2}$?
4. Is 0 a rational number?
5. Find one rational and one irrational number between 2 and 3.

Section B: (2 marks each) [8 Marks]

1. Express $0.232323\dots$ in the form of p/q .
2. Rationalize the denominator: $1/\sqrt{3}$
3. Write three irrational numbers between 1 and 2.
4. Find the value of: $(2 + \sqrt{3})(2 - \sqrt{3})$
5. Is $\sqrt{50}$ rational or irrational? Justify your answer.

Section C: (3 marks each) [9 Marks]

1. Show that $\sqrt{2}$ is an irrational number.
2. Represent $\sqrt{5}$ on the number line using geometrical method.
3. Simplify: $((2\sqrt{3} + \sqrt{2})/(2\sqrt{3} - \sqrt{2})) \times ((2\sqrt{3} - \sqrt{2})/(2\sqrt{3} + \sqrt{2}))$

Section D: (4 marks each) [8 Marks]

1. Prove that: $(a + \sqrt{b})^2 = a^2 + 2a\sqrt{b} + b$. Use it to find the square of $5 + \sqrt{2}$.
2. Convert the recurring decimal $0.767676\dots$ into a rational number.
3. Represent $\sqrt{2}$, $\sqrt{3}$, $\sqrt{4}$, $\sqrt{5}$ on the number line using the spiral method.

Section E: (5 marks) [Bonus Question] (Optional)

Construct a square root spiral up to $\sqrt{10}$ and explain how each new square root is constructed.