SAINIK SCHOOL GOPALGANJ
SUBJECT: MATHS
CLASS - IX

ASSIGNMENT

Lesson: 1: Number System

Very short answer type

1) Is zero a rational number? Can you write it in the form p q, where p and q are integers and q ≠ 0?

2) State whether the following statements are true or false. Give reasons for your answers.

(i) Every natural number is a whole number.

(ii) Every integer is a whole number.

(iii) Every rational number is a whole number.

(iv) Every irrational number is a real number.

(v) Every point on the number line is of the form m , where √m is a natural number.

(vi) Every real number is an irrational number.

3) Are the square roots of all positive integers irrational? If not, give an example of the square root of a number that is a rational number.

Multiple Choice Questions:

1) 0.83458456……is

(i) an irrational number (ii) rational number (iii) a natural number (iv) a whole number.

2) A terminating decimal is

(i) a natural number (ii) a rational number (iii) a whole number (iv) an integer.

3) The value of $\sqrt[3]{1000}$ is

(i) 1 (ii) 10 (iii) 3 (iv) 0

4) The sum of rational and an irrational number

(i) may be natural (ii) may be irrational (iii) is always irrational (iv) is always rational

5) The number $\left(1+\sqrt{3}\right)^2$ is

(a) natural number (b) irrational number (c) rational number (d) integer

<u>Short</u> answer type

1) Show that 0.3333... = 0 3. can be expressed in the form p q , where p and q are integers and q ≠ 0.

2) Show that 0.2353535... can be expressed in the form p/ q , where p and q are integers and q ≠ 0.

3) Find six rational numbers between 3 and 4.

4) Find five rational numbers between 3/ 6 and 4 /5 .

5) Express 0.99999 .... in the form p/ q . Are you surprised by your answer? With your teacher and classmates discuss why the answer makes sense.

6) What can the maximum number of digits be in the repeating block of digits in the decimal expansion of 1/17 ? Perform the division to check your answer.

7) Look at several examples of rational numbers in the form p q (q ≠ 0), where p and q are integers with no common factors other than 1 and having terminating decimal representations (expansions). Can you guess what property q must satisfy?

8) Write three numbers whose decimal expansions are non-terminating non-recurring.

9) Find three different irrational numbers between the rational numbers 5 /7 and 9/ 11 .

10) Classify the following numbers as rational or irrational :

(i) 23 (ii) 225 (iii) 0.3796 (iv) 7.478478... (v) 1.101001000…..

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