Mathematics

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(Chapter – 1)(Number Systems)

(Class – 9)

Exercise 1.2

Question 1:

State whether the following statements are true or false. Justify your answers.

(i) Every irrational number is a real number.

(ii) Every point on the number line is of the form $\sqrt{m}$, where m is a natural number.

(iii) Every real number is an irrational number.

Answer 1:

(i) True, as the collection of all rational and irrational number is real numbers.

(ii) False, there are infinite number on number line between $\sqrt{2}$ and $\sqrt{3}$ that can't be represented as $\sqrt{m}$, m being a natural number.

(iii) False, because real numbers can be rational also.

Question 2:

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.

Answer 2:

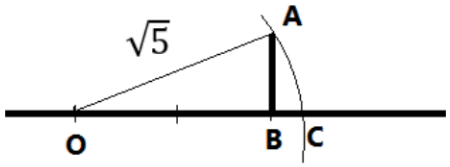
The square roots of all positive integers are not irrational, for example $\sqrt{4} = 2$, which is a rational number.

Question 3:

Show how $\sqrt{5}$ can be represented on the number line.

Answer 3:

To represent $\sqrt{5}$ on number line, take OB = 2 units and make a perpendicular AB at B such that AB = 1 unit.



Now by Pythagoras theorem, the length of OA is $\sqrt{5}$. Now taking O as centre and OA as radius, mark an arc on OB, which intersects at C. Hence, OC = $\sqrt{5}$.