CLASS IX: MATHS
Chapter 1: Number System

Questions and Solutions | EXERCISE 1.1 - NCERT Books

Q1. Is zero a rational number? Can you write it in the form p/q, where p and q are integers and $q \neq 0$?

Sol. Yes, zero is a rational number. We can write zero in the form p/q whose p and q are integers and $q \neq 0$.

so, 0 can be written as $\frac{0}{1} = \frac{0}{2} = \frac{0}{3}$ etc.

Q2. Find six rational numbers between 3 and 4.

Sol. First rational number between 3 and 4 is $= \frac{3+4}{2} = \frac{7}{2}$

Similarly other numbers

$$\frac{3+\frac{7}{2}}{2} = \frac{13}{4}$$

$$\frac{3+\frac{13}{4}}{2} = \frac{25}{8}$$

$$\frac{3+\frac{25}{8}}{2} = \frac{49}{16}$$

$$\frac{3+\frac{49}{16}}{2} = \frac{97}{32}$$

$$\frac{\frac{97}{32}+3}{2} = \frac{193}{64}$$

So, numbers are

$$\frac{7}{2}, \frac{13}{4}, \frac{25}{8}, \frac{49}{16}, \frac{97}{32}, \frac{193}{64}$$

Q3. Find five rational numbers between 3/5 and 4/5.

Sol. Let $a = \frac{3}{5}$ $b = \frac{4}{5}$ $n = 5$

then, $d = \frac{b-a}{n+1} = \frac{\frac{4}{5}-\frac{3}{5}}{5+1} = \frac{1}{30}$

So, rational numbers are

$\frac{3}{5}+\frac{1}{30}=\frac{19}{30}$

$\frac{3}{5}+\frac{2}{30}=\frac{20}{30}$

$\frac{3}{5}+\frac{3}{30}=\frac{21}{30}$

$\frac{3}{5}+\frac{4}{30}=\frac{22}{30}$

$\frac{3}{5}+\frac{5}{30}=\frac{23}{30}$

Thus, numbers are

$\frac{19}{30},\frac{20}{30},\frac{21}{30},\frac{22}{30},\frac{23}{30}$

Q4. 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.

Sol. (i) True, the collection of whole numbers contains all natural numbers.

(ii) False, –2 is not a whole number

(iii) False, $\frac{1}{2}$ is a rational number but not a whole number.