

# Mathematics

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(Chapter – 1)(Number Systems)

(Class – 9)

## Exercise 1.1

### Question 1:

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

### Answer 1:

Yes, zero is a rational number. It can be written in the form of  $\frac{p}{q}$ . For example:  $\frac{0}{1}$ ,  $\frac{0}{2}$ ,  $\frac{0}{5}$  are rational numbers, where p and q are integers and  $q \neq 0$ .

### Question 2:

Find six rational numbers between 3 and 4.

### Answer 2:

**First Method:** To get six rational number between 3 and 4, the denominator must be  $6 + 1 = 7$ .

Here,  $3 = \frac{3 \times 7}{7} = \frac{21}{7}$  and  $4 = \frac{4 \times 7}{7} = \frac{28}{7}$

So, the six rational can be obtained by changing numerator from 22 to 27.

Therefore, the rational numbers are:  $\frac{22}{7}$ ,  $\frac{23}{7}$ ,  $\frac{24}{7}$ ,  $\frac{25}{7}$ ,  $\frac{26}{7}$ ,  $\frac{27}{7}$

**Second Method:** six rational numbers between 3 and 4 are 3.1, 3.2, 3.3, 3.4, 3.5 and 3.6

### Question 3:

Find five rational numbers between  $\frac{3}{5}$  and  $\frac{4}{5}$ .

### Answer 3:

By converting these numbers into decimal, we have

$\frac{3}{5} = 0.6$  and  $\frac{4}{5} = 0.8$

Hence, five rational numbers between  $\frac{3}{5}$  and  $\frac{4}{5}$  are 0.61, 0.62, 0.63, 0.64 and 0.65.

### Question 4:

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.

### Answer 4:

(i) True, as whole number is the collection of Natural numbers and 0.

(ii) False, because negative integers are not whole numbers.

(iii) False, rational numbers like  $\frac{3}{5}$ ,  $\frac{2}{3}$ ,  $\frac{7}{9}$  are not the whole numbers.

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