



SpeedLabs

MATHS

CBSE 8th

TEEVRA EDUTECH PVT. LTD.

Rational number

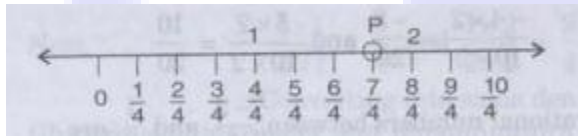
Exercise-1.2

Q.1 Represent these numbers on the number line.

(i) $\frac{7}{4}$ (ii) $\frac{-5}{6}$

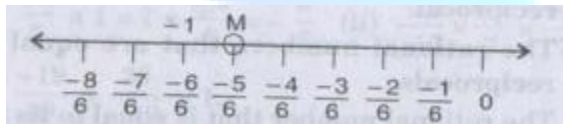
Sol:

(i) $\frac{7}{4} = 1\frac{3}{4}$



$P = 1\frac{3}{4} = \frac{7}{4}$.

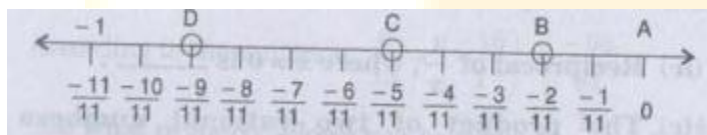
(ii) $\frac{-5}{6}$



$M = \frac{-5}{6}$

Q.2 Represent $\frac{-2}{11}, \frac{-5}{11}, \frac{-9}{11}$ on the number line.

Sol: we draw a number line to represent, $\frac{-2}{11}, \frac{-5}{11}$ and $\frac{-9}{11}$.



$B = \frac{-2}{11}, C = \frac{-5}{11}, D = \frac{-9}{11}$

Q.3 Write five rational numbers which are smaller than 2.

Sol: $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}, \frac{-1}{2}, \frac{-1}{5}$ and so on or $1, \frac{1}{2}, 0, -1, \frac{-1}{2}$.

Q.4 Find ten rational numbers between $-\frac{2}{5}$ and $\frac{1}{2}$.

Sol: $-\frac{2}{5}$ and $\frac{1}{2}$

L.C.M. of 5 and 2 is 10.

Now, $\frac{-2 \times 2}{5 \times 2} = \frac{-4}{10}$ and $\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$ (converting with same denominators)

Changing numerators and denominators in larger numbers.

$$\frac{-4 \times 2}{10 \times 2} = \frac{-8}{20} \text{ and } \frac{5 \times 2}{10 \times 2} = \frac{10}{20}$$

The rational numbers between $-\frac{2}{5}$ and $\frac{1}{2}$ are

$$\frac{-7}{20}, \frac{-6}{20}, \frac{-5}{20}, \frac{-4}{20}, \frac{-3}{20}, \frac{-2}{20}, \frac{-1}{20}, 0, \frac{1}{20}, \frac{2}{20}$$

Q.5 Find five rational numbers between

(i) $\frac{2}{3}$ and $\frac{4}{5}$ (ii) $\frac{-3}{2}$ and $\frac{5}{3}$ (iii) $\frac{1}{4}$ and $\frac{1}{2}$

Sol:

(i) $\frac{2}{3}$ and $\frac{4}{5}$

L.C.M. of 3 and 5 is 15,

$$\text{Now, } \frac{2 \times 5}{3 \times 5} = \frac{10}{15} \text{ and } \frac{4 \times 3}{5 \times 3} = \frac{12}{15}$$

Changing numerators and denominators in larger numbers.

$$\frac{10 \times 4}{15 \times 4} = \frac{40}{60} \text{ and } \frac{12 \times 4}{15 \times 4} = \frac{48}{60}$$

Hence, five rational numbers between $\frac{2}{3}$ and $\frac{4}{5}$ are

$$\frac{41}{60}, \frac{42}{60}, \frac{43}{60}, \frac{44}{60}, \frac{45}{60}$$

(ii) $\frac{-3}{2}$ and $\frac{5}{3}$

L.C.M. of 2 and 3 is 6.

$$\text{Now, } \frac{-3 \times 3}{2 \times 3} = \frac{-9}{6} \text{ and } \frac{5 \times 2}{3 \times 2} = \frac{10}{6} \text{ and } \frac{4 \times 3}{5 \times 3} = \frac{12}{15}$$

Changing numerators and denominators in larger numbers.

$$\frac{10 \times 4}{15 \times 4} = \frac{40}{60} \text{ and } \frac{12 \times 4}{15 \times 4} = \frac{48}{60}$$

Hence, five rational numbers between $\frac{2}{3}$ and $\frac{4}{5}$ are

$$\frac{41}{60}, \frac{42}{60}, \frac{43}{60}, \frac{44}{60}, \frac{45}{60}$$

(ii) $\frac{-3}{2}$ and $\frac{5}{3}$

L.C.M. of 2 and 3 is 6.

(ii) $\frac{-3}{2}$ and $\frac{5}{3}$

L.C.M. of 2 and 3 is 6.

Now, $\frac{-3 \times 3}{2 \times 3} = \frac{-9}{6}$ and $\frac{5 \times 2}{3 \times 2} = \frac{10}{6}$ (converting into same denominator)

Hence, five rational numbers between $\frac{-3}{2}$ and $\frac{5}{3}$ are

$$\frac{-8}{6}, \frac{-7}{6}, 0, \frac{1}{6}, \frac{2}{6}$$

(iii) $\frac{1}{4}$ and $\frac{1}{2}$

L.C.M. of 4 and 2 is 4.

Now, $\frac{1 \times 1}{4 \times 1} = \frac{1}{4}$ and $\frac{1 \times 2}{2 \times 2} = \frac{2}{4}$ (converting into same denominator)

Changing numerators and denominators in larger numbers,

$$\frac{1 \times 8}{4 \times 8} = \frac{8}{32} \text{ and } \frac{2 \times 8}{4 \times 8} = \frac{16}{32}$$

Hence, five rational numbers between $\frac{1}{4}$ and $\frac{1}{2}$ are

$$\frac{9}{32}, \frac{10}{32}, \frac{11}{32}, \frac{12}{32}, \frac{13}{32}$$

Q.6 Write five rational numbers greater than -2.

Sol : Five rational numbers greater than -2 are

$$\frac{-3}{2}, -1, \frac{-1}{2}, 0, \frac{1}{2}. \quad (\text{other numbers may also be possible})$$

Q.7 Find ten rational numbers between $\frac{3}{5}$ and $\frac{3}{4}$.

Sol: L.C.M. of 5 and 4 is 20.

$$\frac{3 \times 4}{5 \times 4} = \frac{12}{20} \text{ and } \frac{3 \times 5}{4 \times 5} = \frac{15}{20} \quad (\text{Converting into same denominator})$$

Changing numerators and denominators in larger numbers,

$$\frac{12 \times 8}{20 \times 8} = \frac{96}{160} \text{ and } \frac{15 \times 8}{20 \times 8} = \frac{120}{160}$$

Hence, rational numbers between $\frac{3}{5}$ and $\frac{3}{4}$ are

$$\frac{97}{160}, \frac{98}{160}, \frac{99}{160}, \frac{100}{160}, \frac{101}{160}, \frac{102}{160}, \frac{103}{160}, \frac{104}{160}, \frac{105}{160}, \frac{106}{160}$$