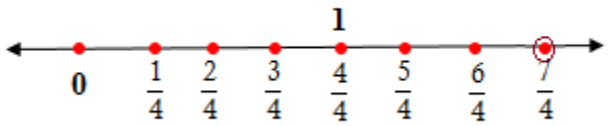
Rational Numbers: Exercise 1.2

Q.1 Represent these numbers on the number line.

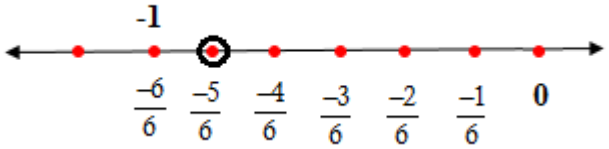
(i) $\frac{7}{4}$

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

Sol. (i) Representation of $\frac{7}{4}$ on number line:

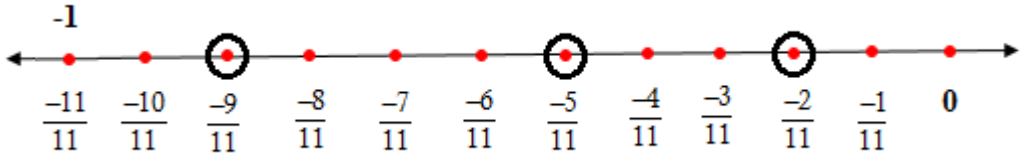


(ii) Representation of $\frac{-5}{6}$ on number line:



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

Sol. The representation of numbers $\frac{-2}{11}, \frac{-5}{11}, \frac{-9}{11}$ on the number line:



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

Sol. There are infinite rational numbers smaller than 2.

The random five rational numbers smaller than 2: 1, $\frac{1}{4}$, $\frac{1}{8}$, 0, $-\frac{1}{2}$.

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

Sol. The five rational numbers between $\frac{-2}{5}$ and $\frac{1}{2}$ are:

Firstly, we need to do the same denominator of both the rational number:

$\frac{-2}{5} \times \frac{2}{2} = -\frac{4}{10}$ and $\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$

Now the five rational numbers between $-\frac{4}{10}$ and $\frac{5}{10}$ are: $-\frac{3}{10}, -\frac{2}{10}, -\frac{1}{10}$, 0, $\frac{1}{10}$

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) Between $\frac{2}{3}$ and $\frac{4}{5}$

Firstly, we need to do the same denominator of both the rational number:

So, given numbers can be written as $\frac{2 \times 15}{3 \times 15} = \frac{30}{45}$ and $\frac{4 \times 9}{5 \times 9} = \frac{36}{45}$

Therefore, five rational numbers between $\frac{30}{45}$ and $\frac{36}{45}$ are: $\frac{31}{45}, \frac{32}{45}, \frac{33}{45}, \frac{34}{45}, \frac{35}{45}$

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

Firstly, we need to do the same denominator of both the rational number:

So, given numbers can be written as $\frac{-3 \times 3}{2 \times 3} = \frac{-9}{6}$ and $\frac{5 \times 2}{3 \times 2} = \frac{10}{6}$

Hence, five rational numbers between $\frac{-9}{6}$ and $\frac{10}{6}$ are: $-\frac{8}{6}, -\frac{7}{6}, -1, -\frac{5}{6}, -\frac{4}{6}$

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

Firstly, we need to do the same denominator of both the rational number:

The given numbers can be written as $\frac{1 \times 8}{4 \times 8} = \frac{8}{32}$ and $\frac{1 \times 16}{2 \times 16} = \frac{16}{32}$

Thus, five rational numbers between $\frac{8}{32}$ and $\frac{16}{32}$ 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. There are infinite rational numbers greater than -2.

So, the random five rational numbers greater than -2 are: -1, 0, 1, ¼, 2.

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

Sol. Firstly, we need to do the same denominator of both the rational number:

So, given numbers can be written as $\frac{3\times 20}{5\times 20} = \frac{60}{100}$ and $\frac{3\times 25}{4\times 25} = \frac{75}{100}$

Thus, ten rational numbers between $\frac{60}{100}$ and $\frac{75}{100}$ are:

$$\frac{61}{100}, \frac{62}{100}, \frac{63}{100}, \frac{64}{100}, \frac{65}{100}, \frac{65}{100}, \frac{66}{100}, \frac{67}{100}, \frac{68}{100}, \frac{69}{100}, \frac{70}{100}$$