Exercise 1.8

Q.1 Find a rational number between -3 and 1

Solution A rational number $= -\frac{3+1}{2} = -\frac{2}{2} = -1$

$\therefore \quad -3 < -1 < 1$

Q.2 Find any five rational numbers less than 2.

Solution: $1, 0, -1, -2, -3$

Q.3 Find two rational numbers between $-\frac{2}{9}$ and $\frac{5}{9}$

Solution: $\because \quad -2 < -1 < 0 < 1 < 5$

$\therefore$ numbers between $-\frac{2}{9}$ and $\frac{5}{9}$ are

$-\frac{1}{9}, \frac{0}{9}$ and $\frac{1}{9}$

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

Solution: $\because$ LCM $(5, 2) = 10$

$\therefore \frac{1}{5} = \frac{1 \times 2}{5 \times 2} = \frac{2}{10}$; also $\frac{1}{2} = \frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$.

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hence, numbers between $\frac{1}{5}$ and $\frac{1}{2}$ are

$$\frac{3}{10}, \frac{4}{10}$$

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

Solution : $\because$ LCM $(4,2) = 4$

hence $\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$.

Now $\frac{1}{4} \times \frac{21}{21} = \frac{21}{84}$.

also $\frac{2}{4} \times \frac{21}{21} = \frac{42}{84}$

$\therefore$ required numbers are

$$\frac{22}{84}, \frac{23}{84}, \frac{24}{84} \cdots\cdots \frac{41}{84}$$

Q.6 Find ten rational numbers between $\frac{-2}{5}$ and $\frac{1}{2}$

Sol: $\because$ LCM $(5,2) = 10$

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

also $\frac{-4}{10} \times \frac{10}{10} = \frac{-40}{100}$; $\frac{5}{10} \times \frac{10}{10} = \frac{50}{100}$

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$\therefore$ required nos

$$-\frac{39}{100}, -\frac{38}{100} \text{ - - - - - - - } \frac{49}{100}.$$

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

Solution : LCM $(5, 4) = 20$

$\therefore \frac{3}{5} \times \frac{4}{4} = \frac{12}{20}$ also $\frac{3}{4} \times \frac{5}{5} = \frac{15}{20}$.

Again $\frac{12}{20} \times \frac{5}{5} = \frac{60}{100}$, $\frac{15}{20} \times \frac{5}{5} = \frac{75}{100}$.

$\therefore$ required numbers

$$\frac{61}{100}, \frac{62}{100} \text{ - - - - - - } \frac{74}{100}.$$

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