

NUMBERS

Class-7 CBSE Math Worksheets with Solutions

Practice Question & worksheet for chapter 1

Question: Find a rational number lying between $\frac{1}{3}$ and $\frac{1}{2}$.

Solution: $x = \frac{1}{3}$ and $y = \frac{1}{2}$, Then clearly $x < y$

A rational number lying between x and y .

$$= \frac{1}{2}(x + y) = \frac{1}{2}\left(\frac{1}{3} + \frac{1}{2}\right) = \frac{1}{2} \times \left(\frac{2+3}{6}\right)$$

$$= \frac{1}{2} \times \frac{5}{6} = \frac{5}{12}$$

Question: Find six rational numbers between 4 and 5.

Solution: $x = 4$, $y = 5$ and $n = 6$.

$$\text{Let } d = \frac{y-x}{n+1} = \frac{5-4}{6+1} = \frac{1}{7}$$

So, the six rational numbers between 4 and 5 are

$(x+d), (x+2d), (x+3d), (x+4d), (x+5d)$ and $(x+6d)$

$$\text{or } \left(4 + \frac{1}{7}\right), \left(4 + \frac{2}{7}\right), \left(4 + \frac{3}{7}\right), \left(4 + \frac{4}{7}\right), \left(4 + \frac{5}{7}\right) \text{ and } \left(4 + \frac{6}{7}\right)$$

$$\text{or } 4\frac{1}{7}, 4\frac{2}{7}, 4\frac{3}{7}, 4\frac{4}{7}, 4\frac{5}{7} \text{ and } 4\frac{6}{7}$$

$$\text{or } \frac{29}{7}, \frac{30}{7}, \frac{31}{7}, \frac{32}{7}, \frac{33}{7} \text{ and } \frac{34}{7}$$

Hence, the required rational numbers between 4 and 5 are

$$\frac{29}{7}, \frac{30}{7}, \frac{31}{7}, \frac{32}{7}, \frac{33}{7} \text{ and } \frac{34}{7}$$

Question. Express the following in the form $\frac{p}{q}$:

(i) $0.6666 \dots$ (ii) $0.\overline{001} \dots$

Solution. (i) Let $x = 0.6666 \dots = 0.\overline{6}$... (i)

Multiplying both sides by 10, we get

$$10x = 6.6666 \dots = 6.\overline{6} \quad \dots (ii)$$

Subtracting (i) from (ii), we get

$$9x = 6 \Rightarrow x = \frac{6}{9} = \frac{2}{3}$$

(ii) Let $x = 0.\overline{001}$... (i)

Multiplying both sides by 1000, we get

$$1000x = 1.\overline{001} \quad \dots(ii)$$

Subtracting (i) from (ii), we get

$$999x = 1 \Rightarrow x = \frac{1}{999}$$

Question. Express the following in the form $\frac{p}{q}$:

(i) $0.4\overline{7}$

(ii) $0.24\overline{5}$

Solution.

(i) Let $x = 0.4\overline{7}$

Multiplying both sides by 10, we get

$$10x = 4.\overline{7} \quad \dots(i)$$

Multiplying both sides again by 10, we get

$$100x = 47.\overline{7} \quad \dots(ii)$$

Subtracting (i) from (ii), we get

$$90x = 43 \quad x = \frac{43}{90}$$

(ii) Let $x = 0.24\overline{5}$

Then, $x = 0.24545\ldots \quad \dots(i)$

$$\therefore 10x = 2.4545\ldots \quad \dots(ii)$$

$$\text{and } 1000x = 245.4545\ldots \quad \dots(iii)$$

on subtracting (ii) from (iii), we get

$$990x = 243 \Leftrightarrow x = \frac{243}{990} = \frac{27}{110}$$

Hence, $0.24\overline{5} = \frac{27}{110}$