



Exercise 1B

Question 3:

(i) Let $x = 0.\bar{3}$

i.e. $x = 0.333 \dots$ (i)

$\Rightarrow 10x = 3.333 \dots$ (ii)

Subtracting (i) from (ii), we get

$$9x = 3$$

$$\Rightarrow x = \frac{3}{9} = \frac{1}{3}$$

Hence, $0.\bar{3} = \frac{1}{3}$

(ii) Let $x = 1.\bar{3}$

i.e. $x = 1.333 \dots$ (i)

$\Rightarrow 10x = 13.333 \dots$ (ii)

Subtracting (i) from (ii) we get;

$$9x = 12$$

$$\Rightarrow x = \frac{12}{9} = \frac{4}{3}$$

Hence, $1.\bar{3} = \frac{4}{3}$

(iii) Let $x = 0.\bar{34}$

i.e. $x = 0.3434 \dots$ (i)

$$\Rightarrow 100x = 34.3434 \dots (ii)$$

Subtracting (i) from (ii), we get

$$99x = 34$$

$$\Rightarrow x = \frac{34}{99}$$

$$\text{Hence, } 0.\overline{34} = \frac{34}{99}$$

$$(iv) \text{ Let } x = 3.\overline{14}$$

$$\text{i.e. } x = 3.1414 \dots (i)$$

$$\Rightarrow 100x = 314.1414 \dots (ii)$$

Subtracting (i) from (ii), we get

$$99x = 311$$

$$\Rightarrow x = \frac{311}{99}$$

$$\text{Hence } 3.\overline{14} = \frac{311}{99}$$

$$(v) \text{ Let } x = 0.\overline{324}$$

$$\text{i.e. } x = 0.324324 \dots (i)$$

$$\Rightarrow 1000x = 324.324324 \dots (ii)$$

Subtracting (i) from (ii), we get

$$999x = 324$$

$$x = \frac{324}{999} = \frac{12}{37}$$

$$\text{Hence, } 0.\overline{324} = \frac{12}{37}$$

$$(vi) \text{ Let } x = 0.\overline{17}$$

$$\text{i.e. } x = 0.177 \dots \text{ (i)}$$

$$\Rightarrow 10x = 1.777 \dots \text{ (ii)}$$

$$\text{and } 100x = 17.777 \dots \text{ (iii)}$$

Subtracting (ii) from (iii), we get

$$90x = 16$$

$$\Rightarrow x = \frac{16}{90} = \frac{8}{45}$$

$$\text{Hence, } 0.1\bar{7} = \frac{8}{45}.$$

$$\text{(vii) Let } x = 0.5\bar{4}$$

$$\text{i.e. } x = 0.544 \dots \text{ (i)}$$

$$\Rightarrow 10x = 5.44 \dots \text{ (ii)}$$

$$\text{and } 100x = 54.44 \dots \text{ (iii)}$$

Subtracting (ii) from (iii), we get

$$90x = 49$$

$$\Rightarrow x = \frac{49}{90}$$

$$\text{Hence, } 0.5\bar{4} = \frac{49}{90}.$$

$$\text{(vii) Let } x = 0.1\bar{6}\bar{3}$$

$$\text{i.e. } x = 0.16363 \dots \text{ (i)}$$

$$\Rightarrow 10x = 1.6363 \dots \text{ (ii)}$$

$$\text{and } 1000x = 163.6363 \dots \text{ (iii)}$$

Subtracting (ii) from (iii), we get

$$990x = 162$$

$$\Rightarrow x = \frac{162}{990} = \frac{9}{55}$$

Hence, $0.1\overline{63} = \frac{9}{55}$.

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