Chapter - 6

Decimal Numbers

What we have learnt:

①

(a) Seven-tenths = 0.7

(b) five-hundredths = 0.05

(c) fifteen-hundredths = 0.15

②

(a) 0.8 = zero point eight

(b) 1.72 = One point seven two

(c) 0.03 = zero point zero three

(d) 120.39 = One hundred twenty point three nine

③

(a) $\frac{6}{10} = 0.6$

(b) $\frac{7}{10} = 0.7$

(c) $\frac{8}{100} = 0.08$

(d) $\frac{47}{100} = 0.47$

Exercise 6.1

(1)

(i) Three tenths = 0.3

(ii) Thirteen and six tenths = 13.6

(iii) Forty two point eight = 42.8

(iv) Fifty decimal four = 50.4

(v) Thirty nine point four five six = 39.456

(vi) Seven hundred sixty one decimal zero three — 761.03

(vii) Ten and five hundredths = 10.05

(viii) Zero decimal one zero one = 0.101

(2)

(i) 0.2 lies between 0 and 1.

0.2 nearer to 0.

(ii) 0.8 lies between 0 and 1.

0.8 nearer to 1.

(iii) 2·6 lies between 2 and 3.

   2·6 nearer to 3.

(iv) 5·8 lies between 5 and 6.

   5·8 nearer to 6.

(v) 11·4 lies between 11 and 12.

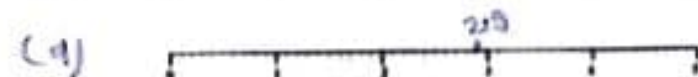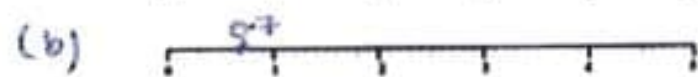   11·4 nearer to 11.

③

(i) 0·26 lies between 0·2 and 0·3.

(ii) 0·53 lies between 0·5 and 0·6.

(iii) 0·19 lies between 0·1 and 0·2.

(iv) 0·72 lies between 0·7 and 0·8.

(v) 0·88 lies between 0·8 and 0·9.

④

(a)

(b)

(c)

(d)

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⑤

(i) Place value of $1 = 10$

Place value of $5 = 5$

Place Value of $8 = \dfrac{8}{10}$

Place value of $2 = \dfrac{2}{100}$

(ii) Place value of $2 = 200$

Place value of $7 = 70$

Place value of $5 = 5$

Place value of $2 = \dfrac{2}{10}$

Place value of $6 = \dfrac{6}{100}$

Place value of $9 = \dfrac{9}{1000}$

(iii) Place value of $4 = 40$

Place value of $6 = 6$

Place value of $0 = 0$

Place value of $7 = \dfrac{7}{100}$

Place value of $5 = \dfrac{5}{1000}$

(iv) Place value of 3 = 300

Place value of 0 = 0

Place value of 2 = 2

Place value of 4 = $\frac{4}{10}$

Place value of 5 = $\frac{5}{100}$

Place value of 9 = $\frac{9}{1000}$

(v) Place value of 5 = 5000

Place value of 3 = 300

Place value of 7 = 70

Place value of 0 = 0

Place value of 3 = $\frac{3}{10}$

Place value of 4 = $\frac{4}{100}$

(vi) Place value of 1 = 100

Place value of 8 = 80

Place value of 5 = 5

Place value of $2 = \dfrac{2}{10}$

Place value of $0 = 0$

Place value of $9 = \dfrac{9}{1000}$

⑥

(i) $0.6 = \dfrac{6}{10}$

(ii) $3.5 = \dfrac{35}{10}$

(iii) $81.27 = \dfrac{8127}{100}$

(iv) $9.301 = \dfrac{9301}{1000}$

⑦

(i) $\dfrac{9}{10} = 0.9$

(ii) $25\dfrac{7}{10} = 25.7$

(iii) $17\dfrac{329}{1000} = 17.329$

(iv) $\dfrac{34187}{100} = 341.87$

(v) $\dfrac{14}{10} = 1.4$

(vi) $\dfrac{23}{10} = 2.3$

(8)

(i) $57.809 = 50 + 7 + \dfrac{8}{10} + 0 + \dfrac{9}{1000}$

(ii) $205.625 = 200 + 0 + 5 + \dfrac{6}{10} + \dfrac{2}{100} + \dfrac{5}{1000}$

(iii) $0.803 = 0 + \dfrac{8}{10} + 0 + \dfrac{3}{1000}$

(iv) $47.001 = 40 + 7 + 0 + 0 + \dfrac{1}{1000}$

(v) $16.401 = 10 + 6 + \dfrac{4}{10} + 0 + \dfrac{1}{1000}$

(vi) $10.095 = 10 + 0 + 0 + \dfrac{9}{100} + \dfrac{5}{1000}$ **250/557**

(9)

(i) $87 + \frac{2}{10} + \frac{5}{100} + \frac{7}{1000} = 87 \cdot 257$

(ii) $40 + 9 + 0 + \frac{3}{100} + \frac{4}{1000} = 49 \cdot 034$

(iii) $200 + 1 + \frac{3}{10} + 0 + \frac{7}{1000} = 201 \cdot 307$

(iv) $0 + \frac{8}{10} + 0 + \frac{2}{1000} = 0 \cdot 802$

(vi) $\frac{3}{1000} + 9 = 9 \cdot 003$

(V) $\frac{4}{100} + \frac{3}{10} + 7 = 7 \cdot 34$

(vii) $13 + \frac{7}{1000} + \frac{5}{10} = 13 \cdot 507$

(10)

(i) $17 \cdot 635 = 17 + \frac{6}{\boxed{10}} + \frac{3}{\boxed{100}} + \frac{5}{\boxed{1000}}$

(ii) $55 \cdot 505 = 50 + \boxed{5} + \frac{5}{\boxed{10}} + 0 + \frac{\vdots}{\boxed{10}}$ 251/557

(11)

(i) 0.906 = Zero point nine zero six   or

= nine tenths and six thousandths

(ii) 83.708 = Eighty three points seven zero eight   or

= Eighty three, seven tenths and eight thousandths.

(iii) 35.516 = Thirty-five point five one six   or

= Thirty five, five tenths, one hundredth and six thousandths

(iv) 86.037 = Eighty six point zero three seven   or

= Eighty six, three hundredths and seven thousandths

(V) 613.904 = Six hundred thirteen point nine zero four   or

= Six hundred thirteen, tenths and four thousandths

Exercise 6.2

①

(i) $\frac{3}{4}$ can be changed to $\frac{3 \times 25}{4 \times 25} = \frac{75}{100} = 0.75$

(ii) $\frac{23}{5}$ can be changed to $\frac{23 \times 2}{5 \times 2} = \frac{46}{10} = 4.6$

(iii) $8\frac{1}{20}$ can be changed to $8 + \frac{1 \times 5}{20 \times 5}$

$$= 8 + \frac{5}{100} = 8.05$$

(iv) $\frac{30}{4}$ can be changed to $\frac{30 \times 25}{4 \times 25} = \frac{750}{100}$

$$= 7.50$$
$$= 7.5$$

(v) $\frac{48}{50}$ can be changed to $\frac{48 \times 2}{50 \times 2} = \frac{96}{100} = 0.96$

(vi) $53\frac{1}{5}$ can be changed to $53 + \frac{1 \times 2}{5 \times 2} = 53 + \frac{2}{10}$

$$= 53.2$$

(vii) $\frac{15}{8}$ can be changed to $\frac{15 \times 125}{8 \times 125} = \frac{1875}{1000}$

$$= 1.875$$

(viii) $3\frac{3}{20}$ can be changed to $3 + \frac{3 \times 5}{20 \times 5}$

$$= 3 + \frac{15}{100}$$
$$= 3.15$$

(2)

(i) $3.25 = 3 + .25 = \frac{3}{1} + \frac{25}{100} = \frac{3}{1} + \frac{25 \div 25}{100 \div 25}$

$$= \frac{3}{1} + \frac{1}{4}$$
$$= \frac{3 \times 4}{1 \times 4} + \frac{1}{4}$$
$$= \frac{12}{4} + \frac{1}{4}$$
$$= \frac{12+1}{4}$$

(ii)

$$18.45 = 18 + .45 = \frac{18}{1} + \frac{45}{100} = \frac{18}{1} + \frac{45 \div 5}{100 \div 5}$$

$$\Rightarrow \frac{18}{1} + \frac{9}{20} = \frac{18 \times 20}{1 \times 20} + \frac{9}{20} = \frac{360}{20} + \frac{9}{20}$$

$$= \frac{369}{20}$$

(iii) $10.08 = 10 + .08 = \frac{10}{1} + \frac{8}{100} = \frac{10}{1} + \frac{8 \div 4}{100 \div 4}$

$$\Rightarrow \frac{10}{1} + \frac{2}{25} = \frac{10 \times 25}{1 \times 25} + \frac{2}{25} = \frac{250}{25} + \frac{2}{25}$$

$$= \frac{250+2}{25} = \frac{252}{25}$$

(iv) $20.65 = 20 + .65 = \frac{20}{1} + \frac{65}{100}$

$$\Rightarrow \frac{20}{1} + \frac{65 \div 5}{100 \div 5} = \frac{20}{1} + \frac{13}{20} = \frac{20 \times 20}{1 \times 20} + \frac{13}{20}$$

$$\Rightarrow \frac{400}{20} + \frac{13}{20} = \frac{400+13}{20} = \frac{413}{2}$$

(V) $7 \cdot 64 = 7 + \cdot 64 = \dfrac{7}{1} + \dfrac{64}{100} = \dfrac{7}{1} + \dfrac{64 \div 4}{100 \div 4}$

$\Rightarrow \dfrac{7}{1} + \dfrac{16}{25} = \dfrac{7 \times 25}{1 \times 25} + \dfrac{16}{25} = \dfrac{175}{25} + \dfrac{16}{25}$

$\Rightarrow \dfrac{175 + 16}{25} = \dfrac{191}{25}$

(vi) $12 \cdot 04 = 12 + \cdot 04 = \dfrac{12}{1} + \dfrac{4}{100} = \dfrac{12}{1} + \dfrac{4 \div 4}{100 \div 4}$

$\Rightarrow \dfrac{12}{1} + \dfrac{1}{25} = \dfrac{12 \times 25}{1 \times 25} + \dfrac{1}{25} = \dfrac{300}{25} + \dfrac{1}{25}$

$\Rightarrow \dfrac{300 + 1}{25} = \dfrac{301}{25}$

(vii) $50 \cdot 25 = 50 + \cdot 25 = \dfrac{50}{1} + \dfrac{25}{100} = \dfrac{50}{1} + \dfrac{25 \div 25}{100 \div 25}$

$\Rightarrow \dfrac{50}{1} + \dfrac{1}{4} = \dfrac{50 \times 4}{1 \times 4} + \dfrac{1}{4} = \dfrac{200}{4} + \dfrac{1}{4}$

$\Rightarrow \dfrac{200 + 1}{4} = \dfrac{201}{4}$

(viii) $0.88 = \dfrac{88}{100} = \dfrac{88 \div 4}{100 \div 4} = \dfrac{22}{25}$
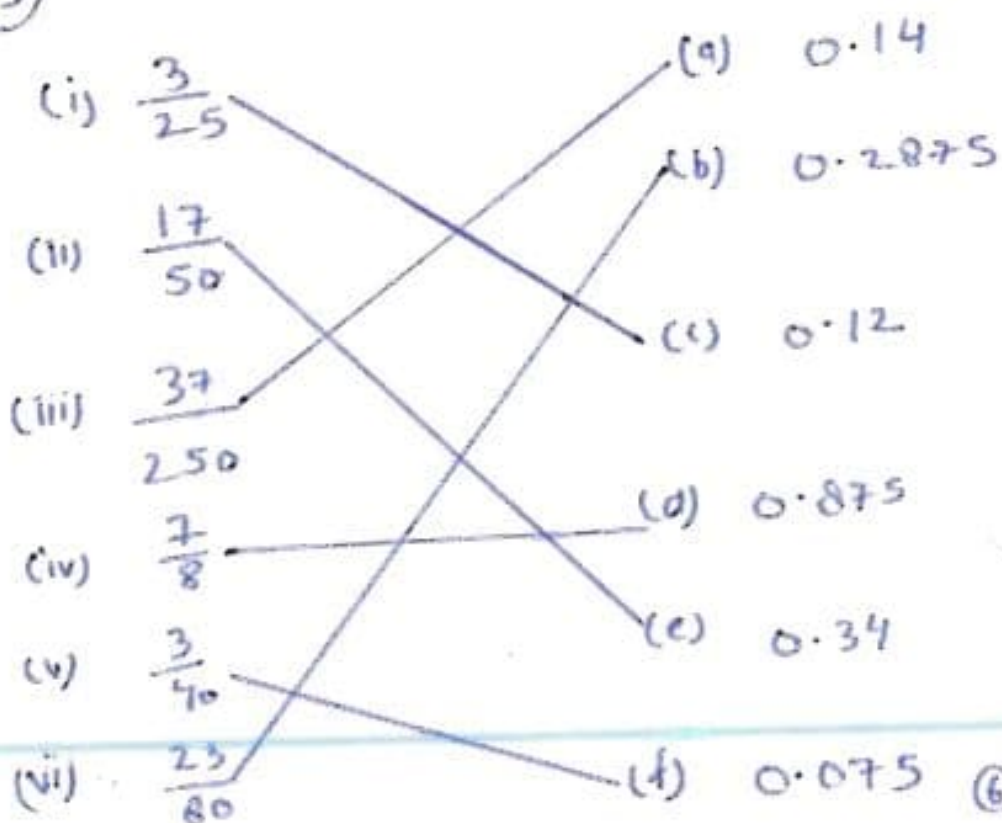
(ix) $54.95 = 54 + .95 = \dfrac{54}{1} + \dfrac{95}{100}$

$\Rightarrow \dfrac{54}{1} + \dfrac{95 \div 5}{100 \div 5} = \dfrac{54}{1} + \dfrac{19}{20} = \dfrac{54 \times 20}{1 \times 20} + \dfrac{19}{20}$

$\Rightarrow \dfrac{1080}{20} + \dfrac{19}{20} = \dfrac{1080 + 19}{20} = \dfrac{1099}{20}$

(x) $0.125 = \dfrac{125}{1000} = \dfrac{125 \div 125}{1000 \div 125} = \dfrac{1}{8}$

(3)

(i) $\dfrac{3}{25}$ (a) 0.14

(ii) $\dfrac{17}{50}$ (b) 0.2875

(iii) $\dfrac{37}{250}$ (c) 0.12

(iv) $\dfrac{7}{8}$ (d) 0.875

(v) $\dfrac{3}{40}$ (e) 0.34

(vi) $\dfrac{23}{80}$ (f) 0.075

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