Chapter 3 Decimals

Decimals. 3. EXERCISE 3.1 VII

1)

i) $\frac{8}{100}$.

Mark the decimal point after two places from right towards the left.

$= 0.08$

ii) $20 + \frac{9}{10} + \frac{4}{100}$.

Convert the $\frac{9}{10}$ & $\frac{4}{100}$ into decimals.

$\frac{9}{10} = 0.9$

$\frac{4}{100} = 0.04$

20, 0.9 and 0.04 are unlike decimals.

So we convert the unlike decimals into like decimal. Then,

$20 = 20.00$.

$0.9 = 0.90$

$0.04 = 0.04$.

$\Rightarrow$

$$\begin{array}{r} 20.00 \\ + \quad 0.90 \\ + \quad 0.04 \\ \hline 20.94 \end{array}$$

iii) $23 + \frac{2}{10} + \frac{6}{1000}$

Firstly convert the $\frac{2}{10}$ & $\frac{6}{1000}$ into decimals

$\frac{2}{10} = 0.2$

$\frac{6}{1000} = 0.006$

23, 0.2, and 0.006 are unlike decimals. So we convert the unlike decimals into like decimals. Then

$$\begin{array}{r} 23.000 \\ 0.006 \\ + \quad 0.200 \\ \hline 23.206 \end{array}$$

2)

i) 0.04

ii) Take the numerator as the number obtained by deleting decimal point is 04.

The denominator as the number obtained by inserting as many zeros with 1. as there are number of places in the decimal part

$= \frac{4}{100}$

$= \frac{1}{25}$

2)

ii) 2.34

The numerator is obtained by deleting the decimal point then we get 234

The denominator is obtained by inserting ~~many~~ two zeros with 1. as there are number of places in the decimal point.

$$= \frac{\cancel{234}^{117}}{\cancel{100}_{50}}$$

$$= \frac{117}{50}$$

iii) 0.342

$$= \frac{\cancel{342}^{171}}{\cancel{1000}_{500}}$$

Both numerator and denominator is divided by 2.

$$= \frac{171}{500}$$

iv) 17.38

$$= \frac{\cancel{1738}^{869}}{\cancel{100}_{50}}$$

Dividing numerator and denominator by 2.

We get

$$= \frac{869}{50}$$

3)

i) $\frac{23}{10}$

Mark the decimal point after one place from right to towards the left.

$= 2.3$

ii) $25\frac{1}{8}$

$= 25 + \frac{1}{8}$

$= 25 + \frac{125 \times 1}{125 \times 8}$ Multiply numerator and denominator by 125

$= 25 + \frac{125}{1000}$

$= 25 + 0.125$

$= 25.125$

iii) $39\frac{7}{35}$

$= 39 + \frac{7}{35}$

$= \frac{39 \times 35 + 7}{35}$

$= \frac{1365 + 7}{35} = \frac{1372}{35}$ 39.2

$= 39.2$

iv) $15\frac{1}{25}$

$= 15 + \frac{1}{25}$

Multiply numerator and denominator by '4'

$= 15 + \frac{4 \times 1}{4 \times 25}$

$= 15 + \frac{4}{100}$

$= 15 + 0.04$

$= 15.04$

4)

i) 41.8 , 39.24 , 5.01 and 62.6

The given decimals are unlike decimals. So to convert the unlike decimals into like decimal point.

$$\begin{array}{r} 41.80 \\ 39.24 \\ 5.01 \\ +\ 62.60 \\ \hline 148.65 \end{array}$$

ii) 18.03, 146.3, 0.829 and 5.324

The given decimals are unlike decimals

So convert the unlike decimal into like decimal

$$\begin{array}{r} 146.300 \\ 18.030 \\ + \quad 0.829 \\ 5.324 \\ \hline 170,483 \end{array}$$

5)

i) $9.756 - 6.28$

$$\begin{array}{r} 9.\overset{10}{7}56 \\ - \quad 6.280 \\ \hline 3.476 \end{array}$$

ii) $48.1 - 0.37$

$$\begin{array}{r} 48.\overset{10}{1}\overset{10}{0} \\ - \quad 0.37 \\ \hline 47.73 \end{array}$$

iii) $108.032 - 86.8$

$$\begin{array}{r} 108.032 \\ - \quad 86.800 \\ \hline 21.232 \end{array}$$

iv) $100 - 26.32$

$$\begin{array}{r} 100.00 \\ - \quad 26.32 \\ \hline 73.68 \end{array}$$

6) Take out 3.547 from 7.2

$$\begin{array}{r} {}^{1}\overset{10}{\cancel{7}}.\overset{10}{2}\overset{10}{0}0 \\ -\ 3.547 \\ \hline 3.653 \end{array}$$

7) Let us considered the added value be 'x'

$$x + 36.85 = 59.41$$

$$x = 59.41 - 36.85$$

$$x = 22.56$$

∴ 22.56 is added to 36.85 then we get 59.41

8) Let us considered the subtracted value be 'x'.

$$17.1 - x = 2.05$$

$$17.1 = x + 2.05$$

$$x = 17.1 - 2.05$$

$$x = 15.049$$

15.049 is subtracted from 17.1 then we get 2.05

9). let us considered the increased value be 'x'.

then $34.79 + x = 70.15$

$x = 70.15 - 34.79$

$x = 35.36$.

35.36 is to increased to get 70.15

10). considered the decreased value be 'x'.

$59.71 - x = 34.58$

$59.71 - 34.58 = x$.

$x = 25.13$,

25.13 is decreased to get 34.58,

EXERCISE - 3.2

1)

i) 4.74×10

shifting the decimal point by one place to the right.

$= 47.4$

ii) 0.45×10.

shifting the decimal point by one place to the right.

$= 4.5$

iii) 0.0215×10.

shifting the decimal point by one place to the right.

$= 0.215$

iv) 0.0054×10.

shifting the decimal point by one place to the right.

$= 0.054$

2)

i) 35.853×100.

shifting the decimal point by two places to the right.

$= 3585.3$

ii) 42.5×100.

$= 42.50 \times 100$ $[\because 42.50 = 42.5]$

shifting the decimal point by two places to the right.

$= 4250$.

iii) 12.075×100

shifting the decimal point by two places to the right.

$= 1207.5$

iv) 100×0.005

shifting the decimal point by two places to the right.

$= 0.5$

3)

i). 2.506×1000.

shifting the decimal point by three places to the right.

$= 2506$.

ii). 20.708×1000.

shifting the decimal point by three places to the right.

$= 20708$.

iii) 0.0529×1000

shifting the decimal point by three places to the right.

$= 52.9$

iv). 1000×0.1

~~shifting~~ 0.100

$[\because 0.1 = 0.100]$

shifting the decimal point by three places to the right

$= 100$.

4)

i) 3.4 × 17.

Multiply the decimal without the decimal point by the given whole number.

= 34 × 17

= 578.

Mark the decimal point in the product to have one place of decimal as are there in the given decimal.

= 57.8

ii) 0.745 × 12.

Multiply the decimal without the decimal point by the given whole number.

= 0745 × 12

= 8940.

Mark the decimal point in the product.

= 8.940

iii) 28.73 × 47.

Multiply the decimal without the decimal point by the given whole number.

$= 2871 \times 47$

$= 135031$

Mark the decimal point in the product

$= 1350.31$

iv) 0.0415×59

Multiply the decimal without the decimal point by the given whole number.

$= 415 \times 59$

$= 24485$

Mark the decimal point in the product

$= 2.4485$

5)

i) 1.07×0.02

$= 107 \times 2$

$= 214$

$$\begin{array}{r} 107 \\ \times\ 2 \\ \hline 214 \end{array}$$

Since the sum of the decimal places in the given decimals is $2+2=4$

So the product must contains 3 places of decimals

$= 1.07 \times 0.02$

$= 0.0214$

ii) 211.9×1.13

$= 2119 \times 113$

$= 239447$

Since the sum of the decimal places in the given decimals is $2+1=3$.

So the product must contains 3 places of decimals.

$= 211.9 \times 1.13$

$= 239.447$

iii) 10.05×1.05

$= 1005 \times 105$

$= 105525$

Since the sum of the decimal places in the given decimals is $2+2=4$.

So the product must contains '4' places of decimals.

$= 10.5525$

iv) 13.01×5.01

$= 1301 \times 501$

$= 651801$

Since the sum of the decimal places in the given decimals is $2+2=4$.

So the product must contains 4 places of decimals

$= 13.01 \times 5.01$

$= 65.1801$

6) Ten we have

Length of rectangle $= 5.5\ m$

Breadth of rectangle $= 3.4\ m$.

Area of rectangle = Length × Breadth.

$= 5.5 \times 3.4\ m^2$.

$= 18.7\ m^2$.

7) The cost of one book is Rs. 25.75/-

cost of 24 books = ?

$= (25.75 \times 24)$

$= Rs.\ 618$

8). We have,

Distance covered in one litre of petrol

$= 14.75$ km.

Distance covered in 15.5 liters of petrol $= (14.75 \times 15.5)$

$= 228.625$ km.

9). Cost of one kg rice $= 42.65/-$

cost of 18.25 kg $= ?$

$= (42.65 \times 18.25)$

$= Rs.\ 778.3625$

10). We have

one meter of cloth cost $= Rs.\ 152.50$

cost of 10.75 meters $= ?$

$= (10.75 \times 152.50)$

$= Rs.\ 1639.375$

EXERCISE - 3.3

1. i) 142.45 by 10.

$= 142.45 \div 10$

$= \frac{142.45}{10}$

shifting the decimal point to the left by 1 place

$= 14.245$

ii) 54.25 by 10

$= 54.25 \div 10.$

$= \frac{54.25}{10}$

shifting the decimal point to the left by 1 place

$= 5.425$

iii) 3.45 by 10.

$= 3.45 \div 10$

$= \frac{3.45}{10}$

shifting the decimal point to the left by 1 place

$= 0.743$

iii) 5.8 by 100.

$= 5.8 \div 100$

$= \frac{5.8}{100}$

shifting the decimal point to the left by 2 places.

$= 0.058$

iv) 0.7 by 100.

$= 0.7 \div 100$

$= \frac{0.7}{100}$

shifting the decimal point to the left by 2 places,

$= 0.007$

v) 0.48 by 100.

$= 0.48 \div 100$

$= \frac{0.48}{100}$

shifting the decimal point to the left by 2 places.

$= 0.0048$

$= 0.345$

iv) 0.57 by 10.

$= 0.57 \div 10$

$= \frac{0.57}{10}$

shifting the decimal point to the left by 1 place

$= 0.057$

2)

i) 459.5 by 100

$= 459.5 \div 100$

$= \frac{459.5}{100}$

shifting the decimal point to the left by 2 places.

$= 4.595$

ii) 74.3 by 100.

$= 74.3 \div 100$

$= \frac{74.3}{100}$

shifting the decimal point to the left by 2 places.

vii) 0.03 by 100

$= 0.03 \div 100$

$= \frac{0.03}{100}$

shifting the decimal point to the left by 2 places.

$= 0.0003$

3)

i) 235.41 by 1000.

$= 235.41 \div 1000$

$= \frac{235.41}{1000}$

shifting the decimal point to the left by 3 places.

$= 0.23541$

ii) 29.5 by 1000

$= 29.5 \div 1000$

$= \frac{29.5}{1000}$

shifting the decimal point to the left by 3 places

$= 0.0295$

iii) 3.8 by 1000.

$= 3.8 \div 1000$

$= \frac{3.8}{1000}$

shifting the decimal point to the left by '3' places

$= 0.0038$

iv) 0.7 by 1000.

$= 0.7 \div 1000$

$= \frac{0.7}{1000}$.

shifting the decimal point to the left by 3 places.

$= 0.0007$

4)

i) 0.45 by 9

9) 0.45 (0.05

0

45

45.

0

$0.45 \div 9 = 0.05$

ii) 217.44 by 18

$$18\overline{)217.44}\,(12.08$$
$$\begin{array}{r} 216 \\ \hline 144 \\ 144 \\ \hline 0 \\ \hline \end{array}$$

$217.44 \div 18 = 12.08$

iii) 319.2 by 2.28

$= 319.2 \div 2.28$

Multiply 100 both numerator and denominator.

$$= \frac{319.2 \times 100}{2.28 \times 100}$$

$$= \frac{31920}{228}$$

$$228\overline{)31920}\,(140$$
$$\begin{array}{r} 228 \\ \hline 912 \\ 912 \\ \hline 00 \\ 00 \\ \hline 0 \\ \hline \end{array}$$

$31920 \div 228 = 140$

iv) 40.32 by 9.6

$$= \frac{40.32}{9.6} = \frac{40.32 \times 10}{9.6 \times 10}$$

$= \frac{403.2}{96}$

$$
\begin{array}{r|l}
96 & 403.2 \ (4.2 \\
\cline{2-2}
384 & \\
\cline{1-1}
192 & \\
192 & \\
\cline{1-1}
0 & \\
\cline{1-1}
\end{array}
$$

$96 \div 4.2 = 403.2 \div 96 = 4.2$

v) 0.768 by 0.9

$= \frac{0.765}{0.9}$

$= \frac{0.765 \times 10}{0.9 \times 10}$

$= \frac{7.65}{9}$

$$
\begin{array}{r|l}
9 & 7.65 \ (0.85 \\
\cline{2-2}
0 & \\
\cline{1-1}
76 & \\
72 & \\
\cline{1-1}
45 & \\
45 & \\
\cline{1-1}
0 & \\
\cline{1-1}
\end{array}
$$

$7.65 \div 9 = 0.85$

vi) 0.768 by 1.6

$$= \frac{0.768 \times 10}{1.6 \times 10}$$

$$= \frac{7.68}{16}$$

$$\begin{array}{r} 16 \overline{)\ 7.68\ (0.48} \\ 0 \\ \hline 76 \\ 64 \\ \hline 128 \\ 128 \\ \hline 0 \end{array}$$

$7.68 \div 16 = 0.48$

5)

i) 16.64 by 20

$$= \frac{16.64}{20}$$

$$= \frac{16.64}{2 \times 10}$$

$$= \frac{16.64}{2} \times \frac{1}{10} = \frac{1.664}{2}$$

2) $\begin{array}{r} 2 \overline{)\ 1.664\ (0.832} \\ 0 \\ \hline 16 \\ 16 \\ \hline 6 \\ 4 \\ \hline 4 \\ 4 \\ \hline 0 \end{array}$

$= 1.664 \div 2 = 0.832$

ii) 0.192 by 12.

$$= \frac{0.192}{12}$$

$$= \frac{0.192}{12}$$

```
12) 0.192 (0.016
    00
    ---
    19
    12
    ---
    72
    72
    --
     0
```

0.192 ÷ 12 = 0.016

iii) 163.44 by 24

$$= \frac{163.44}{24}$$

```
24) 163.44 (6.81
    144
    ---
    194
    192
    ---
     24
     24
     --
      0
```

163.44 ÷ 24 = 6.81

iv) 403.2 by 96.

$= 403.2 \div 96$

$= \frac{403.2}{96}$

```
      4.2
96) 403.2 (
    384
    ---
     192
     192
     ---
       0
     ---
```

$403.2 \div 96 = 4.2$

v) 16.344 by 12

$= 16.344 \div 12$

$= \frac{16.344}{12}$

```
      1.362
12) 16.344 (
    12
    --
     43
     36
     --
      74
      72
      --
       24
       24
       --
        0
       --
```

$16.344 \div 12 = 1.362$

vi) 31.92 by 228

$= 31.92 \div 228$

$= \frac{31.92}{228}$

228) 31.92 (0.14
0
319
228
912
912
0

$31.92 \div 228 = 0.14$

6).

i) 15.68 by 20.

$= 15.68 \div 20$

$= \frac{15.68}{2 \times 10}$

$= \frac{15.68}{2} \times \frac{1}{10}$

$= \frac{1.568}{2}$

2) 1.568 (0.784
0
15
14
16
16
8
8
0

$1.568 \div 2 = 0.784$

(ii) 164.6 by 200.

$= 164.6 \div 200$

$= \frac{164.6}{2 \times 100}$

$= \frac{164.6}{2} \times \frac{1}{100}$

$= \frac{1.646}{2}$

$$
\begin{array}{r|l}
2 & 1.646 \\
\underline{6} & \\
16 & \\
\underline{16} & \\
4 & \\
\underline{4} & \\
6 & \\
\underline{6} & \\
0 &
\end{array}
\quad 0.823
$$

$1.646 \div 2 = 0.823$

(iii) 403.80 by 30

$= 403.80 \div 30$

$= \frac{403.80}{3 \times 10} = \frac{403.80}{3} \times \frac{1}{10}$

$= \frac{40.380}{3}$

3) $\overline{40}^{10}.380 \,(\, 13.46$

39

13

12

18

18

00

$40.380 \div 3 = 13.46$

7)

i) 76 by 0.019

$= 76 \div 0.019$

$= \frac{76 \times 1000}{0.019 \times 1000}$ Multiply 1000 both numerator and denominator.

$= \frac{76000}{19}$

$19) \; 76000 \,(\, 4000$

76

000

000

0

$76000 \div 19 = 4000.$

ii) 88 by 0.08

$= 88 \div 0.08$

$= \frac{88 \times 100}{0.08 \times 100} = \frac{8800}{8}$

$$8)\ 8800\ (1100$$
$$8$$
$$08$$
$$8$$
$$00$$
$$00$$
$$0$$

$8800 \div 8 = 1100$

(iii) 148 by 0.074

$= 148 \div 0.074$

$= \dfrac{148 \times 1000}{0.074 \times 1000}$

$= \dfrac{148000}{74}$

$$74)\ 148000\ (2000$$
$$148$$
$$000$$
$$000$$
$$0$$

$148000 \div 74 = 2000$

(iv) 7 by 0.014

$= 7 \div 0.014$

$$= \frac{7 \times 1000}{0.014 \times 1000}$$

$$= \frac{7000}{14}$$

$$14) 7000 (500$$
$$70$$
$$00$$
$$00$$
$$0$$

$7000 \div 14 = 500$

8)

i) 20 by 50

$= 20 \div 50$

$$= \frac{20.00}{50}$$

$$50) 20.00 (0.4$$
$$00$$
$$200$$
$$200$$
$$0$$

$20.0 \div 50 = 0.4$

ii) 8 by 100

$= 8 \div 100$

$= \frac{8.00}{100}$

$$
\begin{array}{r}
0.08 \\
100\overline{)\,8.00} \\
0 \\
\hline
800 \\
800 \\
\hline
0 \\
\hline
\end{array}
$$

$8.00 \div 100 = 0.08$

iii) 72 by 576

$= 72 \div 576$

$= \frac{72.00}{576}$

$$
\begin{array}{r}
0.125 \\
576\overline{)\,72.00} \\
0 \\
\hline
720 \\
576 \\
\hline
1440 \\
1152 \\
\hline
2880 \\
2880 \\
\hline
0 \\
\hline
\end{array}
$$

$72.00 \div 576 = 0.125$

iv) 144 by 15.

$= 144 \div 15$

$= \frac{144}{15}$

$$\begin{array}{r} 15\overline{)144^{10}}\ (9.6 \\ 135 \\ \hline 90 \\ 90 \\ \hline 0 \end{array}$$

$144 \div 15 = 9.6$

9) Distance covered in 2.4 liters of petrol

$= 43.2$ km

Distance travelled in 1 litre of petrol = ?

$= \frac{43.2}{2.4}$

$= 18$ km.

The distance travel in 1 litre of petrol is $= 18$ km.

10) Total weight of some bags of wheat

$= 1743$ kg.

Each bag weight = 49.8 kg.

How many bags = $\frac{1743 \times 10}{49.8 \times 10}$ Multiply by 10 both numerator & denominator.

$= \frac{17430}{498}$

$= 35$

11) Total cloth = 50m.

No. of pieces of each = 1.25 m

No. of pieces = $\frac{50 \times 100}{1.25 \times 100}$.

$= \frac{5000}{125}$

$= 40$

12) Length of rectangular polygon each side

$= 2.5$ (m)

perimeter of polygon = 12.5 (m)

No. of sides polygon have = $\frac{12.5 \times 10}{2.5 \times 10}$.

$= 5$

13). We have,

The product of the given decimals = 42.987

One decimal = 12.46

The other decimal = $\frac{42.987}{12.46}$

= 3.45

14). Total weight of sugar = 3483.3 kg.

No. of bags = 34

Weight of each bag = $\frac{3483.3}{34}$

= 102.45 kg.

15) Each bucket has capacity = 8.5 litres

Total capacity of water = 586.5 litres

Number of buckets = $\frac{586.5}{8.5}$

= $\frac{586.5 \times 10}{8.5 \times 10}$

= 69.