

# 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,

$$20 = 20.00$$

$$0.9 = 0.90$$

$$0.04 = 0.04$$

$$\Rightarrow$$

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

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

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

2) 8  
4)  
8.

$$0.04$$

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

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

$$\begin{aligned} &= \frac{4}{100} \\ &= \frac{1}{25} \end{aligned}$$

2)

ii)

2.34

3

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

The denominator is obtained by inserting <sup>two</sup> zeros with 1. as there are number of places in the decimal point.

$$= \frac{234}{100}$$

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

iii)

0.342

$$= \frac{342}{1000}$$

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

Both numerator and denominator is divided by 2.

iv)

17.38

$$= \frac{1738}{100}$$

Dividing numerator and denominator by 2.

we get

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

3)

8)

$$\frac{23}{10}$$

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  
dividing numerator and  
denominator by 125

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

$$= 25 + 0.125$$

$$= 25.125$$

iii)

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

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

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

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

$$= 39.2$$

9c)

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

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

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 <sup>like</sup> decimal

$$\begin{array}{r}
 146.300 \\
 18.030 \\
 + 0.829 \\
 \hline
 170.483
 \end{array}$$

5)

i)  $9.756 - 6.28$

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

ii)  $48.1 - 0.37$

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

iii)  $108.032 - 86.8$

$$\begin{array}{r}
 \overset{10}{1}08.\overset{10}{0}32 \\
 - 86.800 \\
 \hline
 21.232
 \end{array}$$

iv)  $100 - 26.32$

$$\begin{array}{r}
 \overset{10}{1}00.\overset{10}{0}0 \\
 - 26.32 \\
 \hline
 73.68
 \end{array}$$

6.) Take out 3.547 from 7.2

$$\begin{array}{r} \overset{10}{7}.\overset{10}{2}\overset{10}{00} \\ - 3.547 \\ \hline 3.653 \end{array}$$

7.) Let us consider the added value be  $x$

$$x + 36.85 = 59.41$$

$$x = 59.41 - 36.85$$

$$x = 22.56$$

$\therefore$  22.56 is added to 36.85 then we get 59.41

8.) Let us consider the subtracted value be  $x$

$$17.1 - x = 2.051$$

$$17.1 = x + 2.051$$

$$x = 17.1 - 2.051$$

$$x = 15.049$$

15.049 is subtracted from 17.1 we then we get 2.051

9). let us consider 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

9

1)

i)

$$4.74 \times 10$$

shifting the decimal point by one place to the right.

$$= 47.4$$

ii)

$$0.45 \times 10.$$

shifting the decimal point by one place to the right.

$$= 4.5$$

iii)

$$0.0215 \times 10.$$

shifting the decimal point by one place to the right.

$$= 0.215$$

iv)

$$0.0054 \times 10.$$

shifting the decimal point by one place to the right.

$$= 0.054$$

2)

i)  $35.853 \times 100.$

shifting the decimal point by two places to the right.

$$= 3585.3$$

ii)

$$42.5 \times 100.$$

$$= 42.50 \times 100$$

$$[\because 42.50 = 42.5]$$

shifting the decimal point by two places to the right.

$$= 4250.$$

iii)

$$12.075 \times 100$$

shifting the decimal point by two places to the right.

$$= 1207.5$$

iv)

$$100 \times 0.005$$

shifting the decimal point by two places to the right.

$$= 0.5$$

3)

i).  $2.506 \times 1000.$

shifting the decimal point by three places to the right.

$$= 2506.$$

ii).

$$20.708 \times 1000.$$

shifting the decimal point by three places to the right.

$$= 20708.$$

iii)

$$0.0529 \times 1000$$

shifting the decimal point by three places to the right.

$$= 52.9$$

iv).

$$1000 \times 0.1$$

~~shifting~~ 0.100

$$[\because 0.1 = 0.100]$$

shifting the decimal point by three places to the right

$$= 100.$$

4)

i)

$$3.4 \times 17.$$

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

$$\text{Prod} = 34 \times 17$$

$$= 578.$$

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

$$= 57.8$$

ii)

$$0.745 \times 12.$$

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

$$= 0.745 \times 12$$

$$= 8940.$$

Mark the decimal point in the product.

$$= 8.940$$

iii)

$$28.73 \times 47.$$

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)  $0.0415 \times 59$

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)

$$1.07 \times 0.02$$

$$= 107 \times 2$$

$$= 214$$

$$\begin{array}{r} \times 107 \\ 21 \\ \hline 214 \end{array}$$

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

So the product must contain 3 places of decimals

$$= 1.07 \times 0.02$$

$$= 0.0214$$

$$\text{ii)} \quad 211.9 \times 1.13$$

$$= 2119 \times 113$$

$$= 239447$$

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

So the product must contain 3 places of decimals.

$$= 211.9 \times 1.13$$

$$= 239.447$$

$$\text{iii)} \quad 10.05 \times 1.05$$

$$= 1005 \times 105$$

$$= 105525$$

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

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

$$= 10.5525$$

iv)

$$13.01 \times 5.01$$

$$= 1301 \times 501$$

$$= 651801$$

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

So the product must contain 4 places of decimals

$$= 13.01 \times 5.01$$

$$= 65.1801$$

6.)

then we have

$$\text{Length of rectangle} = 5.5 \text{ m}$$

$$\text{Breadth of rectangle} = 3.4 \text{ m}$$

$$\text{Area of rectangle} = \text{Length} \times \text{Breadth}$$

$$= 5.5 \times 3.4 \text{ m}^2$$

$$= 18.7 \text{ m}^2$$

7.)

The cost of one book is Rs. 25.75/-

cost of 24 books = ?

$$= (25.75 \times 24)$$

$$= \text{Rs. } 618$$

8). We have,

Distance covered in one litre of petrol

$$= 14.75 \text{ km.}$$

Distance covered in 15.5 liters of

$$\text{petrol} = (14.75 \times 15.5)$$

$$= 228.625 \text{ km.}$$

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

Cost of 18.25 kg = ?

$$= (42.65 \times 18.25)$$

$$= \text{Rs. } 778.3625$$

10). We have

one meter of cloth cost = Rs. 152.50

Cost of 10.75 meters = ?

$$= (10.75 \times 152.50)$$

$$= \text{Rs. } 1639.375$$



### EXERCISE - 3.3

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

$$= 0.743$$

18

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.

$$= 0.0048$$

$$= 0.345$$

19

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

$$9) 0.45 \text{ (0.05)}$$

$$\begin{array}{r} 0 \\ \hline 45 \\ 45 \\ \hline 0 \end{array}$$

$$0.45 \div 9 = 0.05$$

i)

217.44 by 18

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

$$217.44 \div 18 = 12.08$$

ii)

319.2 by 2.28

$$319.2 \div 2.28$$

Multiply both numerator and denominator.

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

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

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

$$31920 \div 228 = 140$$

iii)

40.32 by 9.6

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

$$\begin{array}{r} 403.2 \\ 96 \end{array}$$

$$\begin{array}{r} 96 \overline{) 403.2} \quad (4.2 \\ \underline{384} \phantom{.0} \\ 192 \phantom{.0} \\ \underline{192} \phantom{.0} \\ 0 \end{array}$$

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

v).

0.768 by 0.9

$$= \frac{0.768}{0.9}$$

$$= \frac{0.768 \times 10}{0.9 \times 10}$$

$$= \frac{7.68}{9}$$

$$9 \overline{) 7.68} \quad (0.85$$

$$\begin{array}{r} 0 \\ \underline{76} \phantom{8} \\ 70 \phantom{8} \\ \underline{45} \phantom{8} \\ 45 \phantom{8} \\ \underline{0} \end{array}$$

$$7.68 \div 9 = 0.85$$

vi)

0.768 by 1.6

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

24

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

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

$$7.68 \div 16 = 0.48$$

5)

i) 16.64 by 20

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

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

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

$$2) \overline{16.64} \quad (0.832$$

$$2) \overline{1.664} \quad (0.832$$

$$\begin{array}{r} 0 \\ \underline{16} \\ 16 \\ \underline{16} \\ 68 \\ \underline{68} \\ 44 \\ \underline{44} \\ 0 \end{array}$$

$$= 1.664 \div 2 = 0.832$$



ii)

0.192 by 12.

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

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

$$\begin{array}{r} 12 \overline{) 0.192} \quad (0.016) \\ \underline{00} \\ 19 \\ \underline{12} \\ 72 \\ \underline{72} \\ 0 \end{array}$$

$$0.192 \div 12 = 0.016$$

iii)

163.44 by 24

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

$$\begin{array}{r} 24 \overline{) 163.44} \quad (6.81) \\ \underline{144} \\ 194 \\ \underline{192} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

$$163.44 \div 24 = 6.81$$

iv)

403.2 by 96.

$$= 403.2 \div 96$$

$$= \frac{403.2}{96}$$

$$\begin{array}{r} 96 \overline{) 403.2} \quad (4.2 \\ \underline{384} \phantom{0} \\ 192 \\ \underline{192} \\ 0 \end{array}$$

$$403.2 \div 96 = 4.2$$

v)

16.344 by 12

$$= 16.344 \div 12$$

$$= \frac{16.344}{12}$$

$$\begin{array}{r} 12 \overline{) 16.344} \quad (1.362 \\ \underline{12} \phantom{00} \\ 43 \\ \underline{36} \phantom{0} \\ 74 \\ \underline{72} \phantom{0} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

$$16.344 \div 12 = 1.362$$

vi)

31.92 by 228

$$= 31.92 \div 228$$

$$= \frac{31.92}{228}$$

$$228 \overline{) 31.92} \quad (0.14$$

$$\begin{array}{r} 0 \\ -16 \\ \hline 319 \\ 228 \\ \hline 912 \\ 912 \\ \hline 0 \end{array}$$

$$31.92 \div 228 = 0.14$$

6).

i)

15.68 by 20.

$$= 15.68 \div 20$$

$$= \frac{15.68}{20 \times 10}$$

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

$$= \frac{1.568}{2}$$

$$2) 1.568 \quad (0.784$$

$$\begin{array}{r} 0 \\ 15 \\ 14 \\ \hline 16 \\ 16 \\ \hline 0 \end{array} \quad \begin{array}{r} 8 \\ 8 \\ \hline 0 \end{array}$$

$$1.568 \div 2 = 0.784$$

ii)

164.6 by 200.

$$= 164.6 \div 200$$

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

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

$$= \frac{1.646}{2}$$

$$2) 1.646 (0.823$$

$$\begin{array}{r} 0 \\ \hline 16 \\ 16 \\ \hline 4 \\ 4 \\ \hline 6 \\ 6 \\ \hline 0 \end{array}$$

$$1.646 \div 2 = 0.823$$

iii)

403.80 by 30

$$= 403.80 \div 30$$

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

$$= \frac{40.380}{3}$$

$$3) \overline{40.380} (13.46$$

$$\begin{array}{r} 39 \\ \hline 13 \\ 12 \\ \hline 18 \\ 18 \\ \hline 00 \end{array}$$

$$40.380 \div 3 = 13.46$$

7)

i)

$$76 \text{ by } 0.019$$

$$= 76 \div 0.019$$

$$= \frac{76 \times 1000}{0.019 \times 1000}$$

multiply 1000 both  
numerator and denominator.

$$= \frac{76000}{19}$$

$$19) \overline{76000} (4000$$

$$\begin{array}{r} 76 \\ \hline 000 \\ 000 \\ \hline 0 \end{array}$$

$$76000 \div 19 = 4000.$$

ii)

$$88 \text{ by } 0.08$$

$$= 88 \div 0.08$$

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

$$\begin{array}{r}
 8 \overline{) 8800} \quad (1100 \\
 \underline{8} \phantom{00} \\
 08 \phantom{00} \\
 \underline{8} \phantom{00} \\
 00 \phantom{00} \\
 \underline{00} \\
 0
 \end{array}$$

$$8800 \div 8 = 1100$$

117)

$$148 \text{ by } 0.074$$

$$= 148 \div 0.074$$

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

$$= \frac{148000}{74}$$

$$\begin{array}{r}
 74 \overline{) 148000} \quad (2000 \\
 \underline{148} \phantom{00} \\
 000 \phantom{00} \\
 \underline{000} \\
 0
 \end{array}$$

$$148000 \div 74 = 2000$$

90)

$$7 \text{ by } 0.014$$

$$= 7 \div 0.014$$

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

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

$$\begin{array}{r} 14 \overline{) 7000} \quad (500 \\ \underline{70} \phantom{00} \\ 00 \phantom{00} \\ \underline{00} \phantom{00} \\ 0 \end{array}$$

$$7000 \div 14 = 500$$

8)

i).

20 by 50

$$= 20 \div 50$$

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

$$\begin{array}{r} 50 \overline{) 20.00} \quad (0.4 \\ \underline{00} \phantom{00} \\ 200 \phantom{00} \\ \underline{200} \phantom{00} \\ 0 \end{array}$$

$$20.0 \div 50 = 0.4$$

ii)

8 by 100

$$= 8 \div 100$$

$$= \frac{8.00}{100}$$

$$\begin{array}{r} 100 \overline{) 8.00} \quad (0.08) \\ \underline{0} \\ 800 \\ \underline{800} \\ 0 \end{array}$$

$$8.00 \div 100 = 0.08$$

ii)

$$72 \text{ by } 576$$

$$= 72 \div 576$$

$$= \frac{72.00}{576}$$

$$\begin{array}{r} 576 \overline{) 72.00} \quad (0.125) \\ \underline{0} \\ 720 \\ \underline{576} \\ 1440 \\ \underline{1152} \\ 2880 \\ \underline{2880} \\ 0 \end{array}$$

$$72.00 \div 576 = 0.125$$



iv)

144 by 15.

33

$$= 144 \div 15$$

$$= \frac{144}{15}$$

$$\begin{array}{r} 15 \overline{) 144} \quad (9.6 \\ \underline{135} \phantom{0} \\ 90 \phantom{0} \\ \underline{90} \\ 0 \end{array}$$

$$144 \div 15 = 9.6$$

9)

Distance covered in 2.4 liters of petrol

$$= 43.2 \text{ km}$$

Distance travel in 1 litre of petrol = ?

$$= \frac{43.2}{2.4}$$

$$= 18 \text{ km.}$$

The distance travel in 1 litre of petrol

$$\text{is } = 18 \text{ km.}$$

10).

Total weight of some bags of wheat

$$= 1743 \text{ kg.}$$

Each bag weight = 49.8 kg.

34

$$\begin{aligned}\text{How many bags} &= \frac{1743 \times 10}{49.8 \times 10} \quad \text{multiply by 10 both} \\ &= \frac{17430}{498} \quad \text{numerator \& denominator} \\ &= 35 \quad \text{-cancel.}\end{aligned}$$

11)

Total cloth = 50m.

No. of pieces of each = 1.25 m

$$\begin{aligned}\text{No. of pieces} &= \frac{50 \times 100}{1.25 \times 100} \\ &= \frac{5000}{125} \\ &= 40\end{aligned}$$

12)

Length of rectangular polygon each side  
= 2.5cm

Perimeter of polygon = 12.5cm

No. of sides polygon have = ~~2~~

$$\begin{aligned}&= \frac{12.5 \times 10}{2.5 \times 10} \\ &= 5\end{aligned}$$

13)

We have,

The product of the given decimals = 42.987

One decimal = 12.46

$$\begin{aligned} \text{The other decimal} &= \frac{42.987}{12.46} \\ &= 3.45 \end{aligned}$$

14)

Total weight of sugar = 3483.3 kg.

No. of bags = 34

$$\begin{aligned} \text{Weight of each bag} &= \frac{3483.3}{34} \\ &= 102.45 \text{ kg.} \end{aligned}$$

15)

Each bucket has capacity = 8.5 litres

Total capacity of water = 586.5 litres

$$\begin{aligned} \text{Number of buckets} &= \frac{586.5}{8.5} \\ &= \frac{586.5 \times 10}{8.5 \times 10} \\ &= 69 \end{aligned}$$