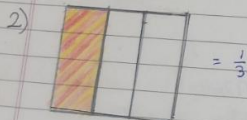


## Ch 2 Fractions and Decimals

Represent the following in fractions.



**Fractions**  
 $a, b \in \mathbb{W}$   
 $a \in \mathbb{N}, b \in \mathbb{D}$

**Proper Fractions**  
 $N < D$   
 eg.  $\frac{2}{3}, \frac{5}{7}$

**Improper Fractions**  
 $N > D$   
 eg.  $\frac{5}{2}, \frac{7}{6}$

**Mixed Fraction**  
 $\mathbb{W} + \text{proper fraction}$   
 eg.  $3\frac{1}{2}$

**Like Fraction**  
 Same Denominator  
 eg.  $\frac{2}{3}, \frac{4}{3}$

**Unlike Fraction**  
 Different Denominator  
 eg.  $\frac{2}{3}, \frac{4}{5}$

**Equivalent Fractions**  
 Same value but  
 different fractions  
 eg.  $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}$

eg. Find the equivalent fraction of  $\frac{2}{10}$

① Find simplest form of  $\frac{2}{10}$

Ans  $\frac{2}{10} = \frac{4}{5} = \frac{16}{20} = \frac{24}{30}$

②  $\frac{2}{10} = \frac{1}{5}$

③ Unit Fractions

→ Fractions with numerator as 1  
 eg.  $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{10}$

Equivalent Fraction

Equivalent fractions are the fractions that have different numerators and denominators but are equal to the same value.



$$\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{1 \times 3}{2 \times 3} = \frac{1 \times 4}{2 \times 4}$$

$$= \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$

$$\therefore \frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$

① Find the equivalent fraction of  $\frac{8}{10}$

Sol  $\frac{8}{10} = \frac{8 \div 2}{10 \div 2} = \frac{4}{5}$

$$\frac{8}{10} = \frac{8 \times 2}{10 \times 2} = \frac{16}{20}$$

$$\frac{8}{10} = \frac{4}{5} = \frac{16}{20}$$

② What is the simplest form of  $\frac{9}{27}$

Sol  $\frac{9}{27} = \frac{1}{3}$

Operation of fractions

Note:-

The easiest steps to adding and subtracting fractions are

- \* Make sure the denominators are the same
- \* Subtract or add the numerator and denominator
- \* Simplify the fractions, if required
- \* If the denominators are different, convert it into like fractions

### Multiplication of fractions

- \* To multiply a whole number with a proper or a improper fraction, we multiply the whole number with the numerator of the fraction, keeping the denominator same.

\* Eg:  $2 \times \frac{5}{3} = \frac{10}{3}$

:  $2 \times \frac{7}{2} = \frac{14}{2} = 7$

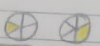
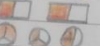
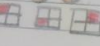
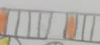
- \* To multiply a mixed fraction to whole numbers, first convert the mixed fraction to an improper fraction and multiply

\* Eg:  $3 \times 2\frac{5}{7} = 3 \times \frac{19}{7} = \frac{57}{7} = 8\frac{1}{7}$

4.  $\frac{3}{5}$  of 13, 'of' represents multiplication

$\Rightarrow \frac{3}{5} \times 13 = \frac{39}{5} = 7\frac{4}{5}$

Ex-2.1

1. (i) d   
 (ii) b   
 (iii) a   
 (iv) c 

2. (i) c   
 (ii) a   
 (iii) b 

3. (i to v) h.w.

(vi)  $\frac{5}{2} \times 6^3 = 15$

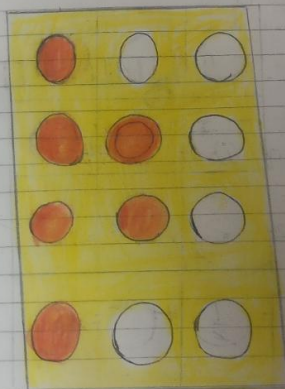
(vii)  $11 \times \frac{4}{7} = \frac{11 \times 4}{7} = \frac{44}{7} = 6\frac{2}{7}$

(viii)  $13 \times \frac{1}{3} = \frac{13}{3} = 4\frac{1}{3}$

(ix)  $20 \times \frac{4}{5} = 16$

(x)  $\frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$

4. (i)  $\frac{1}{2}$  of circles in box

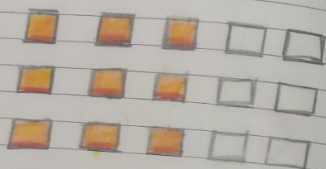


(ii)  $\frac{2}{3}$  of the triangles in box





(iv)  $\frac{3}{5}$  of the squares in the box



8 a  $\frac{1}{2}$  of (i) 24 (ii) 44

(i)  $\frac{1}{2}$  of 24 =  $\frac{1}{2} \times 24 = 12$

(ii)  $\frac{1}{2}$  of 44 =  $\frac{1}{2} \times 44 = 22$

b  $\frac{2}{3}$  of (i) 18 (ii) 27

(i)  $\frac{2}{3} \times 18 = 12$

(ii)  $\frac{2}{3} \times 27 = 18$

c  $\frac{3}{4}$  of (i) 16 (ii) 36

(i)  $\frac{3}{4} \times 16 = 12$

(ii)  $\frac{3}{4}$  of 36 =  $\frac{3}{4} \times 36 = 27$

d.  $\frac{4}{5}$  of (i) 20 (ii) 35

(i)  $\frac{4}{5}$  of 20 =  $\frac{4}{5} \times 20 = 16$

(ii)  $\frac{4}{5}$  of 35 =  $\frac{4}{5} \times 35 = 28$

6a  $3 \times 5\frac{1}{5} = 3 \times \frac{26}{5} = \frac{78}{5} = 15\frac{3}{5}$

b  $5 \times 6\frac{3}{4} = 5 \times \frac{27}{4} = \frac{135}{4} = 33\frac{3}{4}$

341

3 (i)  $7 \times \frac{2}{5} = \frac{14}{5} = 2\frac{4}{5}$

(ii)  $4 \times \frac{1}{3} = \frac{4}{3} = 1\frac{1}{3}$

(iii)  $2 \times \frac{6}{7} = \frac{12}{7} = 1\frac{5}{7}$

(iv)  $5 \times \frac{2}{3} = \frac{10}{3} = 3\frac{1}{3}$

(v)  $\frac{2}{3} \times 4 = \frac{8}{3} = 2\frac{2}{3}$

6c  $7 \times 2\frac{1}{4} = 7 \times \frac{9}{4} = \frac{63}{4} = 15\frac{3}{4}$

d.  $4 \times 6\frac{1}{3} = 4 \times \frac{19}{3} = \frac{76}{3} = 25\frac{1}{3}$

e.  $3\frac{1}{4} \times 6 = \frac{13}{4} \times 6 = \frac{39}{2} = 19\frac{1}{2}$

f.  $3\frac{2}{5} \times 8 = \frac{17}{5} \times 8 = \frac{136}{5} = 27\frac{1}{5}$

7a  $\frac{1}{2}$  of (i) 24 (ii) 48

(i)  $\frac{1}{2} \times 24 = 12$

(ii)  $\frac{1}{2} \times 48 = 24$

b  $\frac{1}{2} \times 48 = 24$

c)  $\frac{1}{2} \times \frac{36}{9} \times 19 = \frac{19}{1} = 19$

8 Given

Total Quantity of water in a bottle = 5 litres  
 Wahya consumed  $\frac{2}{5}$  of water

i) Water consumed by her =  $\frac{2}{5}$  of 5

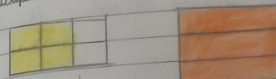
$$= \frac{2}{5} \times 5$$

$$= 2 \text{ litres}$$

(ii) Fraction of total quantity drank by her =  $\frac{2}{5}$

### Activity

Multiplication of fraction by a fraction



Combine



Coloured Boxes = 18

Total Boxes = 20

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$$

### Conclusion

$$\frac{2}{5} \times \frac{3}{4} = \frac{16}{12}$$

### Steps For Multiplication

\* multiply the numerator  
 multiply the denominator  
 if needed simplify or reduce the fraction

Example

$$1) \frac{7}{3} \times \frac{5}{2} = \frac{35}{6}$$

$$\frac{35}{6} > \frac{7}{3} \text{ and } \frac{35}{6} > \frac{5}{2}$$

$$2) \frac{6}{3} \times \frac{4}{3} = \frac{8}{3}$$

$$\frac{8}{3} > \frac{6}{3} \text{ and } \frac{8}{3} > \frac{4}{3}$$

Ex 2.2

1. (i)  $\frac{1}{4}$  of  $\frac{1}{4}$  b)  $\frac{3}{5}$  c)  $\frac{4}{3}$

$$a) \frac{1}{4} \text{ of } \frac{1}{4} = \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$$

$$b) \frac{1}{4} \text{ of } \frac{3}{5}$$

$$\frac{1}{4} \times \frac{3}{5} = \frac{3}{20}$$

$$c) \frac{1}{4} \text{ of } \frac{4}{3}$$

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

$$2) (i) \frac{2}{3} \times 2\frac{2}{3}$$

$$\frac{2}{3} \times 2\frac{2}{3} = \frac{2}{3} \times \frac{8}{3} = \frac{16}{9} = 1\frac{7}{9}$$



$$(iii) \frac{3}{8} \times \frac{6}{4}$$

$$\frac{3}{8} \times \frac{6}{4} = \frac{9}{16}$$

iv

$$(vi) \frac{11}{2} \times \frac{3}{10}$$

$$\frac{11}{2} \times \frac{3}{10} = \frac{33}{20} = 1 \frac{13}{20}$$

$$(vii) \frac{4}{5} \times \frac{12}{7}$$

$$\frac{4}{5} \times \frac{12}{7} = \frac{48}{35} = 1 \frac{13}{35}$$

$$3i) \frac{2}{5} \times 5 \frac{1}{2}$$

$$\frac{2}{5} \times 5 \frac{1}{2} = \frac{2}{5} \times \frac{11}{2} = \frac{21}{10} = 2 \frac{1}{10}$$

$$(ii) 6 \frac{2}{3} \times \frac{7}{4}$$

$$6 \frac{2}{3} \times \frac{7}{4} = \frac{224}{45} = 4 \frac{44}{45}$$

$$(vi) 2 \frac{3}{5} \times 3$$

$$2 \frac{3}{5} \times 3 = \frac{27}{5} = 5 \frac{2}{5}$$

$$(vii) 3 \frac{4}{5} \times \frac{3}{5}$$

$$3 \frac{4}{5} \times \frac{3}{5} = \frac{57}{25}$$

$$4ii) \frac{1}{2} \text{ of } \frac{6}{7} \boxed{>} \frac{2}{3} \text{ of } \frac{3}{7}$$

$$\frac{1}{2} \times \frac{6}{7} \boxed{>} \frac{2}{3} \times \frac{3}{7}$$

$$\frac{3}{7} \boxed{>} \frac{2}{7}$$

Given  
B. Soili plants 4 saplings  
Distance between two saplings =  $\frac{3}{4}$   
Distance between first and last sapling =  
 $\frac{3}{4} \times 3 = \frac{9}{4}$

$$6 \text{ Time taken to read a book} = 1 \frac{3}{4} \text{ hr every day} = \frac{7}{4} \text{ hours}$$

$$\text{Time taken to read} = 6 \text{ days} = 6 \times \frac{7}{4} = \frac{42}{4} \text{ hours}$$

$$\text{No. of hours required to read the book} = 6 \times 1 \frac{3}{4} = 6 \times \frac{7}{4} = \frac{21}{2} \text{ hours} = 10 \frac{1}{2} \text{ hours}$$

HW

$$1 (ii) \frac{1}{2} \text{ of } a \frac{2}{3} b \frac{5}{6} c \frac{7}{10}$$

$$a) \frac{1}{2} \times \frac{2}{3} = \frac{2}{6}$$

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

$$c) \frac{1}{2} \times \frac{7}{10} = \frac{7}{20}$$

$$2 (i) \frac{2}{3} \times \frac{7}{9} = \frac{14}{27}$$

$$(iv) \frac{9}{5} \times \frac{3}{5} = \frac{27}{25} = 1 \frac{2}{25}$$

$$(v) \frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$$



$$3 \text{ (iii)} \quad \frac{3}{2} \times 5\frac{1}{2}$$

$$\Rightarrow \frac{3}{2} \times \frac{16}{2} = 8$$

$$4 \text{ (iv)} \quad \frac{5}{6} \times 2\frac{3}{4}$$

$$\Rightarrow \frac{5}{6} \times \frac{17}{4} = \frac{85}{42} = 2\frac{1}{42}$$

$$5 \text{ (v)} \quad 3\frac{2}{5} \times \frac{4}{7}$$

$$\frac{17}{5} \times \frac{4}{7} = \frac{68}{35} = 1\frac{33}{35}$$

$$4 \text{ (i)} \quad \frac{2}{7} \div \frac{3}{4} \quad \boxed{<} \quad \frac{3}{5} \div \frac{5}{8}$$

$$\frac{2}{7} \times \frac{4}{3}$$

$$\frac{3}{5} \times \frac{8}{5}$$

$$\frac{3}{14}$$

$$\frac{3}{8}$$

7 Given

Distance travelled by a car in 1 hr of petrol = 16 km

$$\text{(i) amount travelled in } 2\frac{3}{4} \text{ hrs} = 2\frac{3}{4} \times 16 = \frac{11 \times 16}{4} = 44 \text{ km}$$

$$8. \text{ (i)} \quad \frac{2}{3} \times \frac{5}{10} = \frac{10}{30}$$

$$\text{(ii)} \quad \frac{10}{30} = \frac{1}{3}$$

$$b \text{ (i)} \quad \frac{3}{5} \times \frac{8}{15} = \frac{24}{75}$$

$$\text{Simplest form of } \frac{24}{75} = \frac{8}{25}$$

20/4/23

### Division of fractions

There arise situations when we have to divide a whole number by a fraction or a fraction by another fraction. For example, to cut a paper strip of given length into smaller strips of a certain length.

Division of the whole number by a fraction

To divide a whole number by any fraction, we multiply that whole number by the reciprocal of that fraction. Thus,

$$\text{eg: } 1 \div \frac{1}{2} = 1 \times \frac{2}{1} = 1 \times \text{reciprocal of } \frac{1}{2}$$

To divide a whole number by a mixed fraction

To divide a whole number by a mixed fraction, we first convert the mixed fraction into an improper fraction and then perform the division.

$$\text{eg: } 4 \div 2\frac{2}{3} = 4 \div \frac{12}{3} = 4 \times \frac{3}{12} = \frac{4 \times 3}{12} = \frac{12}{12} = 1$$

Division of a fraction by a whole no.

To divide a fraction by a whole number, we multiply that fraction by the reciprocal of that whole number.

$$\text{eg: } \frac{2}{3} \div 2 \Rightarrow \frac{2}{3} \times \frac{1}{2} = \frac{1}{3}$$

To divide a mixed fraction by a whole fraction

While dividing mixed fraction by whole numbers, we convert the mixed fraction into whole fraction.

$$\text{eg: } 2\frac{3}{4} \div 5$$

$$\Rightarrow \frac{7}{2} \div 5$$

$$\Rightarrow \frac{7}{2} \times \frac{1}{5} = \frac{7}{10}$$



### Division of a Fraction by Another Fraction

To divide a fraction (dividend) by a fraction (divisor), we multiply the fraction (dividend) by the reciprocal of the fraction (divisor).

$$\frac{1}{3} \div \frac{5}{6} = \text{reciprocal of } \frac{5}{6} = \frac{1}{3} \times \frac{6}{5} = \frac{2}{5}$$

$\frac{1}{3}$	$\div$	$\frac{3}{4}$
Keep		Change
$\downarrow$		$\downarrow$
$\frac{1}{3}$	$\times$	$\frac{4}{3}$

Ex 23

$$\text{Q. (i)} \quad 12 \div \frac{3}{4} \Rightarrow 12 \times \frac{4}{3} = 16$$

$$\text{Q. (ii)} \quad 14 \div \frac{5}{6} \Rightarrow 14 \times \frac{6}{5} \Rightarrow \frac{84}{5} \Rightarrow 16 \frac{4}{5}$$

$$\text{Q. (iii)} \quad 8 \div \frac{7}{5} \Rightarrow 8 \times \frac{5}{7} \Rightarrow \frac{24}{7} \Rightarrow 3 \frac{3}{7}$$

$$\text{(iv)} \quad 4 \div \frac{8}{9} \Rightarrow 4 \times \frac{9}{8} \Rightarrow \frac{36}{8} \Rightarrow \frac{9}{2} \Rightarrow 4 \frac{1}{2}$$

$$\text{(v)} \quad 3 \div 2 \frac{1}{3} \Rightarrow 3 \div \frac{7}{3} \Rightarrow 3 \times \frac{3}{7} = \frac{9}{7} \Rightarrow 1 \frac{2}{7}$$

$$\text{(vi)} \quad 5 \div 2 \frac{4}{7} \Rightarrow 5 \div \frac{25}{7} \Rightarrow \frac{5 \times 7}{25} \Rightarrow \frac{7}{5} \Rightarrow 1 \frac{2}{5}$$

$$\text{Hw (i)} \quad \frac{3}{7} \quad \text{Reciprocal} = \frac{7}{3} \quad (\text{Improper fraction})$$

$$\text{Hw (ii)} \quad \text{Reciprocal of } \frac{5}{8} = \frac{8}{5} \quad (\text{Improper fraction})$$

$$\text{Hw (iii)} \quad \text{Reciprocal of } \frac{7}{9} = \frac{9}{7} \quad (\text{proper fraction})$$

$$\text{Hw (iv)} \quad \text{Reciprocal of } \frac{6}{5} = \frac{5}{6} \quad (\text{proper fraction})$$

$$\text{(v)} \quad \text{Reciprocal of } \frac{12}{7} = \frac{7}{12} \quad (\text{proper fraction})$$

$$\text{(vi)} \quad \text{Reciprocal of } \frac{1}{8} = \frac{8}{1} \quad (\text{Whole number})$$

$$\text{(vii)} \quad \text{Reciprocal of } \frac{1}{11} = \frac{11}{1} \quad (\text{Whole number})$$

$$3 \text{ (i)} \quad \frac{7}{3} \div 2 \Rightarrow \frac{7}{3} \times \frac{1}{2} = \frac{7}{6} = 1 \frac{1}{6}$$

$$\text{(ii)} \quad \frac{4}{9} \div 5 \Rightarrow \frac{4}{9} \times \frac{1}{5} \Rightarrow \frac{4}{45}$$

$$\text{(iii)} \quad \frac{6}{13} \div 7 \Rightarrow \frac{6}{13} \times \frac{1}{7} \Rightarrow \frac{6}{91}$$

$$\text{(iv)} \quad 4 \frac{1}{3} \div 3 \Rightarrow \frac{13}{3} \div 3 \Rightarrow \frac{13}{3} \times \frac{1}{3} \Rightarrow \frac{13}{9} \Rightarrow 1 \frac{4}{9}$$

$$\text{(v)} \quad 3 \frac{1}{2} \div 4 \Rightarrow \frac{7}{2} \times \frac{1}{4} \Rightarrow \frac{7}{8}$$

$$\text{(vi)} \quad 4 \frac{3}{7} \div 7 \Rightarrow \frac{31}{7} \times \frac{1}{7} = \frac{31}{49}$$

$$\text{(vii)} \quad \frac{2}{5} \div \frac{1}{2} \Rightarrow \frac{2}{5} \times \frac{2}{1} = \frac{4}{5}$$

$$\text{(viii)} \quad \frac{4}{9} \div \frac{2}{3} \Rightarrow \frac{4}{9} \times \frac{3}{2} = \frac{2}{3}$$

$$\text{(ix)} \quad \frac{3}{7} \div \frac{8}{7} \Rightarrow \frac{3}{7} \times \frac{7}{8} = \frac{3}{8}$$

$$\text{(x)} \quad 2 \frac{1}{3} \div \frac{3}{5} \Rightarrow \frac{7}{3} \div \frac{3}{5} \Rightarrow \frac{7}{3} \times \frac{5}{3} \Rightarrow \frac{35}{9} \Rightarrow 3 \frac{8}{9}$$



$$(v) 3\frac{1}{2} \div \frac{8}{3} \Rightarrow \frac{7}{2} \times \frac{3}{8} = \frac{21}{16} \Rightarrow 1\frac{5}{16}$$

$$(vi) \frac{2}{5} \div 1\frac{1}{2} \Rightarrow \frac{2}{5} \div \frac{3}{2} \Rightarrow \frac{2}{5} \times \frac{2}{3} \Rightarrow \frac{4}{15}$$

$$(vii) 3\frac{1}{5} \div 1\frac{2}{3} \Rightarrow \frac{16}{5} \div \frac{5}{3} \Rightarrow \frac{16}{5} \times \frac{3}{5} \Rightarrow \frac{48}{25} \Rightarrow 1\frac{23}{25}$$

$$(viii) 2\frac{1}{5} \div 1\frac{1}{5} \Rightarrow \frac{11}{5} \div \frac{6}{5} \Rightarrow \frac{11}{5} \times \frac{5}{6} \Rightarrow \frac{11}{6} \Rightarrow 1\frac{5}{6}$$

### Decimal numbers

- A fraction whose denominator is  $\frac{1}{10}, \frac{1}{100}, \frac{1}{1000}$  etc is called a decimal fraction. Eg  $\frac{3}{100}, \frac{1}{1000}$
- These numbers are written by using a decimal fraction.

Eg:

We can write a decimal number in its expanded form also:

$$130.3 = 100 + 30 + 0 + 0.3$$

or  $100 + 30 + 0 + \frac{3}{10}$

$$17.85 = 10 + 7 + 0.8 + 0.05$$

$$= 10 + 7 + \frac{8}{10} + \frac{5}{100}$$

### Need of Decimals

While converting lower units of money length to their higher units, we are required to use decimals.

$$\text{Eg} = ₹1 = 100p$$

### Multiplication of Decimal By whole no.

- \* Multiply normally with whole numbers
- \* Count the total decimals
- \* Move the decimal digit <sup>left</sup> by the number of each decimal

### Ex 2.4

- $0.2 \times 6 = 1.2$
  - $8 \times 4.6 = 36.8$
  - $2.7 \times 5 = 13.55$
  - $20.1 \times 4 = 80.4$
  - $0.05 \times 7 = 0.35$
  - $21.02 \times 4 = 84.08$
  - $2 \times 0.86 = 1.72$

- Given

Length of a rectangle = 5.7 cm

Breadth of a rectangle = 3.2 cm

Area =  $l \times b$

$= 5.7 \times 3$

$= 18.5 \text{ cm}^2$

- $1.3 \times 10 = 13$
  - $36.8 \times 10 = 368$
  - $153.7 \times 10 = 1537$
  - $168.07 \times 10 = 1680.7$
  - $31.1 \times 100 = 3110$
  - $156.1 \times 100 = 15610$
  - $3.62 \times 100 = 362$
  - $43.07 \times 100 = 4307$

- $0.5 \times 10 = 5$
- $0.08 \times 10 = 0.8$
- $0.9 \times 100 = 90$
- $0.03 \times 1000 = 30$



4

Given

Distance covered in 1 l of petrol = 55.3 km  
 $\therefore$  Distance covered in 10 l of petrol =  $55.3 \text{ km} \times 10$   
 $= 553 \text{ km}$

(i)  $25 \times 0.3 = 0.75$

(ii)  $0.1 \times 51.7 = 5.17$

(iii)  $0.2 \times 316.8 = 63.36$

(iv)  $1.3 \times 3.1 = 4.03$

(v)  $0.5 \times 0.08 = 0.025$

(vi)  $1.2 \times 0.15 = 0.18$

(vii)  $1.07 \times 0.02 = 0.0214$

(viii)  $10.05 \times 1.05 = 10.5525$

(ix)  $101.01 \times 0.01 = 1.0101$

(x)  $100.01 \times 1.1 = 110.011$

11/10/23

### Division of a decimal by a whole number :-

To divide a decimal number by a whole number, we first divide them as whole numbers. Then place the decimal number in the quotient as in the decimal no.

Eg - 1  $15.5 \div 5$

$$\begin{array}{r} 5 \overline{) 15.5} \\ \underline{-15} \phantom{0} \\ 0 \phantom{0} \\ \underline{\times 5} \phantom{0} \\ 5 \phantom{0} \\ \underline{-5} \phantom{0} \\ 0 \end{array}$$

Alternate method

$$\begin{array}{r} 5 \overline{) 15.5} \\ \underline{-15} \phantom{0} \\ 0 \phantom{0} \\ \underline{\times 5} \phantom{0} \\ 5 \phantom{0} \\ \underline{-5} \phantom{0} \\ 0 \end{array}$$

Eg. 3  $126.35 \div 7 = 18.05$

$$\begin{array}{r} 7 \overline{) 126.35} \\ \underline{-7} \phantom{00} \\ 56 \phantom{0} \\ \underline{-56} \phantom{0} \\ 0 \phantom{0} \\ \underline{\times 3} \phantom{0} \\ 35 \phantom{0} \\ \underline{-35} \phantom{0} \\ 0 \end{array}$$

While dividing 2 decimal numbers, first shift the decimal point to the right by equal number of places in both, to convert the divisor to a whole number. Then divide.

Eg:- 1.  $7.75 \div 0.25$

$$\Rightarrow \frac{7.75 \times 100}{0.25 \times 100} \Rightarrow \frac{775}{25} \Rightarrow 31$$

2.  $42.8 \div 0.02$

$$\Rightarrow \frac{42.8 \times 100}{0.02 \times 100} \Rightarrow \frac{4280}{2} \Rightarrow 2140$$

3.  $5.6 \div 1.4$

$$\Rightarrow \frac{5.6 \times 10}{1.4 \times 10} \Rightarrow \frac{56}{14} \Rightarrow 4$$

### Division of a decimal number by 10, 100, 1000 :-

To divide a decimal number by 10, 100, 1000, shift the digits in the decimal number to the left by as many places as the number 0's.

Eg:- 1)  $23.9 \div 10 = 2.39$

2)  $23.9 \div 100 = 0.239$

3)  $23.9 \div 1000 = 0.0239$



Ex 25

(i)  $0.4 \div 2 \Rightarrow \frac{0.4 \times 10}{2 \times 10} \Rightarrow \frac{4}{20} \Rightarrow \frac{1}{5} \Rightarrow 0.2$   
 (ii)  $0.35 \div 5 \Rightarrow \frac{0.35 \times 100}{5 \times 100} \Rightarrow \frac{35}{500} \Rightarrow \frac{7}{100} \Rightarrow 0.07$

(iii)  $4 \overline{) 2.48} \text{ (0.62)}$   
 $\begin{array}{r} 24 \downarrow \\ \times 8 \\ \hline 192 \\ \times \\ \hline \end{array}$

(Hw) (iv)  $6 \overline{) 65.4} \text{ (10.9)}$   
 $\begin{array}{r} 6 \downarrow \\ \times 54 \\ \hline 324 \\ \times \\ \hline \end{array}$

(Hw) (v)  $4 \overline{) 651.2} \text{ (162.8)}$   
 $\begin{array}{r} 4 \downarrow \\ 25 \downarrow \\ 24 \downarrow \\ 18 \downarrow \\ 32 \downarrow \\ 32 \downarrow \\ \times \\ \hline \end{array}$

(vii)  $7 \overline{) 14.49} \text{ (2.07)}$   
 $\begin{array}{r} 14 \downarrow \\ \times 49 \\ \hline 149 \\ \times \\ \hline \end{array}$

(vii)  $4 \overline{) 3.96} \text{ (0.99)}$   
 $\begin{array}{r} 36 \downarrow \\ \times 36 \\ \hline 144 \\ \times \\ \hline \end{array}$

2 (i)  $4.8 \div 10 = 0.48$  (ii)  $52.5 \div 10 = 5.25$  (iii)  $0.7 \div 10 = 0.07$  (iv)  $33.1 \div 10 = 3.31$  (v)  $272.23 \div 10 = 27.223$  (vi)  $0.56 \div 10 = 0.056$  (vii)  $3.97 \div 10 = 0.397$

4 (i)  $79 \div 1000 = 0.079$  (ii)  $26.3 \div 1000 = 0.0263$  (iii)  $38.53 \div 1000 = 0.03853$  (iv)  $128.9 \div 1000 = 0.1289$

5 (i)  $\frac{7 \times 10}{3.5 \times 10} = \frac{70}{35} = 2$

(ii)  $36 \div 0.2$   
 $\Rightarrow \frac{36 \times 10}{0.2 \times 10} \Rightarrow \frac{360}{2} \Rightarrow 180$

(iii)  $\frac{3.25 \times 10}{0.5 \times 10} = \frac{32.5}{5} \Rightarrow 6.5$

$5 \overline{) 32.5} \text{ (6.5)}$   
 $\begin{array}{r} 30 \downarrow \\ 25 \downarrow \\ 25 \downarrow \\ \times \\ \hline \end{array}$

(iv)  $\frac{30.94 \times 10}{0.7 \times 10} = \frac{309.4}{7}$

$7 \overline{) 309.4} \text{ (44.2)}$   
 $\begin{array}{r} 28 \downarrow \\ 29 \downarrow \\ 28 \downarrow \\ 14 \downarrow \\ 14 \downarrow \\ \times \\ \hline \end{array}$

(i)  $\frac{0.5 \times 100}{0.25 \times 100} = \frac{50}{25} = 2$

(ii)  $\frac{7.75 \times 100}{0.25 \times 100} = \frac{775}{25} = 31$

(iii)  $\frac{76.5 \times 100}{0.15 \times 100} = \frac{7650}{15} = 510$

(iv)  $\frac{37.8 \times 10}{1.4 \times 10} = \frac{378}{14} = 27$

(v)  $\frac{2.73 \times 10}{1.3 \times 10} = \frac{27.3}{13} = 2.1$

$13 \overline{) 27.3}$   
 $\begin{array}{r} 20 \downarrow \\ 26 \downarrow \\ 13 \downarrow \\ \times \\ \hline \end{array}$

6. Given

Distance covered in 2.4 l = 43.2 km  
 $\therefore$  Distance covered in 1 l =  $\frac{43.2 \times 10}{24} = \frac{432}{24} = 18$  km



## Representation of fractions as a Decimal

Fraction	Decimal
$\frac{1}{2} = \frac{1}{2^1} = (\frac{1}{2})^1$	0.5
$\frac{1}{4} = \frac{1}{2^2} = (\frac{1}{2})^2$	$(0.5)^2 = 0.25$
$\frac{1}{8} = \frac{1}{2^3} = (\frac{1}{2})^3$	$(0.5)^3 = 0.125$
$\frac{1}{16} = \frac{1}{2^4} = (\frac{1}{2})^4$	$(0.5)^4 = 0.0625$
$\frac{1}{5} = \frac{1}{5^1} = (\frac{1}{5})^1$	0.2
$\frac{1}{25} = \frac{1}{5^2} = (\frac{1}{5})^2$	$(0.2)^2 = 0.04$
$\frac{1}{125} = \frac{1}{5^3} = (\frac{1}{5})^3$	$(0.2)^3 = 0.008$
$\frac{1}{625} = \frac{1}{5^4} = (\frac{1}{5})^4$	$(0.2)^4 = 0.0016$

Ex. 1)  $3 \times \frac{1}{4} \Rightarrow 3 \times 0.25 = 0.75$

2)  $\frac{7}{16} \Rightarrow 7 \times \frac{1}{16} \Rightarrow 7 \times 0.0625 = 0.4375$

3)  $\frac{12.5}{50} \Rightarrow \frac{125}{500} \times \frac{1}{10} \Rightarrow \frac{125}{1000} \times \frac{1}{5}$

$\Rightarrow 12.5 \times 0.2$   
 $\Rightarrow 0.25$

## HOVS

$5 \frac{1}{4} \div 2.8 \times 16$   
 $(\frac{21}{4} \div \frac{28}{10}) \times 16$   
 $(\frac{21 \times 5}{4 \times 2} \div \frac{14}{5}) \times 16$   
 $\frac{15}{8} \times 16 = 30$

$\frac{2}{6} + 0.04 \Rightarrow \frac{2}{6} + \frac{1}{25} \Rightarrow \frac{50+6}{150} = \frac{56}{150} = \frac{28}{75}$

$\frac{56}{150} \div \frac{2}{5} \Rightarrow \frac{56 \times 5}{150 \times 2} = \frac{56 \times 5}{300} = \frac{28}{45}$

$\frac{3.6 \times 1.4}{4} \Rightarrow 5.04 \div \frac{9}{25} \Rightarrow \frac{5.04 \times 25}{9} = \frac{126}{9} = 14$

$\Rightarrow \frac{126 \times 25}{9} = 14$

$\frac{1}{3} - 0.5 \times 3 \Rightarrow \frac{1}{3} - 1.5$   
 $\frac{2}{5}$

$\Rightarrow \frac{1}{3} - \frac{15}{10} \Rightarrow \frac{10-45}{30} \div \frac{2}{5}$   
 $\frac{2}{5}$

$\frac{-35}{30} \div \frac{2}{5} \Rightarrow \frac{-35 \times 5}{30 \times 2} = \frac{-35}{12}$

$\frac{2 \times 3.25}{\frac{5}{4}} \Rightarrow \frac{6.5 \times 4}{10 \times 5} = \frac{26}{5} \Rightarrow 5 \frac{1}{5}$

$\frac{25 \div 0.25}{3.75 \div \frac{1}{4}} \Rightarrow \frac{25 \times 100}{3.75 \times 4} = \frac{2500}{15} = 166 \frac{2}{3}$

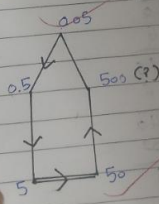
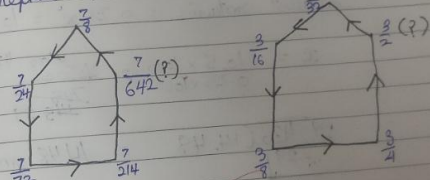
$\frac{100}{4} = 25$

$0.04 \times \frac{5}{16} \div 2.5 \Rightarrow \frac{0.04 \times 5}{16 \times 2.5} = \frac{0.2}{40} = \frac{1}{200}$

$\frac{1}{25} \times \frac{1}{8} \div \frac{50}{100} \Rightarrow \frac{1}{200} \times 2 = \frac{1}{100} = 0.01$

$\frac{1}{200} \times 2 = \frac{1}{100} = 0.01$

Replace (?) with the appropriate fraction





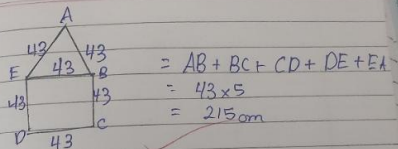
There are four containers that are arranged in the ascending order of their height. If the height of the smallest container given is expressed as  $0.725x = 10.5\text{cm}$ . Find the height of the largest one.

Ans Given

Largest container =  $x$   
 Smallest container =  $0.725x = 10.5\text{cm}$

$$x = \frac{10.5 \times 1000}{0.725 \times 1000} = \frac{2400}{725} = 3.31$$

$$\begin{array}{r} 29 \overline{) 420} \quad 14.48 \\ - 291 \\ \hline 129 \\ - 116 \\ \hline 130 \\ - 116 \\ \hline 140 \\ - 116 \\ \hline 240 \\ - 232 \\ \hline 8 \end{array} \quad = 14.48\text{ cm}$$



Chapter completed  
 CRA portion completed