

## Fractions, Decimals and Percentages

The same proportion of a number can be expressed as a:

- Fraction
- Decimal
- Percentage

**Fractions** – are parts of a number

*A fraction tells you what proportions you have:*

$\frac{1}{2}$  = split into 2 pieces and you have 1 of them

$\frac{3}{4}$  = split into 4 pieces and you have 3 of them

### Decimal fractions

To change  $\frac{1}{2}$  into a decimal fraction divide the top by the bottom

$$\begin{array}{r} 0.5 \\ 2 \overline{) 1.0000} \end{array}$$

-  bottom on outside, top on inside
- put in decimal point below and above
- add zeros

$\frac{3}{2} = 0.66666$  which is a number that carries on forever

*A recurring decimal can be represented by placing a dot above the recurring number e.g.  $0.\dot{6}$*

### Percentages

Easiest way to make these is from decimal

- Make decimal**
- Multiply by 100**

$$\frac{1}{2} = 0.5 \times 100 = 50\%$$

- move decimal point 1 place for each zero
- decimal point is important (£3.49 and £349 are not the same!)

$$0.7 \quad \times 100 = 70\% \quad \text{or you could just move the point two decimal places}$$

$$0.66666 \quad \times 100 = 66.666\% \quad \text{or you could just move the point two decimal places}$$

Percentages are a type of fraction:  $34\%$  is the same as  $\frac{34}{100}$ ,  
 $25\%$  is the same as  $\frac{25}{100}$

Every **whole number has a decimal point** (we just don't bother to write it in)

7 is really 7.0

10 is really 10.0

125 is really 125.0

Fractions, decimals and percentages are inter-changeable with one another and can easily be converted:

<b>Fraction</b>	<b>divide the parts to get a decimal</b>	<b>Decimal</b>	<b>times by 100 to find the %</b>	<b>Percentage</b>
$\frac{1}{4}$	1 divided by 4 =	0.25	$0.25 \times 100 =$	25%
$\frac{3}{10}$	3 divided by 10 =	0.3	$0.3 \times 100 =$	30%
$\frac{3}{4}$	3 divided by 4 =	0.75	$0.75 \times 100 =$	75%

To convert from a percentage to a decimal divide the numbers

e.g. 25% becomes  $25 \div 100 = 0.25$

You may need to convert proportions to enable you to compare a set of numbers like for like.

<b>Fraction</b>	<b>Decimal</b>	<b>Percentage</b>
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{8}$	0.375	37.5%
$\frac{2}{3}$	0.6	66.6%
$\frac{4}{5}$	0.8	80%
$\frac{1}{6}$	0.16	16.6%
$\frac{3}{12}$	0.25	25%

Once converted it is easy to sort a list of numbers from lowest to highest.

For example:

0.8, 37.5%,  $\frac{3}{12}$ , 0.16,  $\frac{1}{4}$ , 50%

All converted to decimals would read:

0.8, 0.375, 0.25, 0.16, 0.25, 0.5

In order this would read:

0.16, 0.25, 0.25, 0.375, 0.5, 0.8

Based on this information, the correct order of the original sequence would be:

0.16,  $\frac{1}{4}$ ,  $\frac{3}{12}$ , 37.5%, 50%, 0.8