

# Percentages, Fractions and Decimals

Percentages are used in many ways in everyday life:

- This essay has been graded at 58%...
- 72% of women think that...
- Interest rates have risen by 0.5%...
- Sale: Up to 70% off!

'Percent' means 'of 100', and any percentage can be written as a fraction of 100.

## Example

25% = 25/100 which we can cancel down to 1/4.

That is, 25% of something, is one quarter of it.

## Example

120% = 120/100 = 6/5

0.75% = 0.75/100 = 75/10000 = 3/400

(to deal easily with the decimal point, we multiplied above and below by 100; we then cancelled above and below by 25)

## Example

*If 55% of the pupils in a school are girls, what fraction are boys?*

If 55% are girls, then 45% are boys.

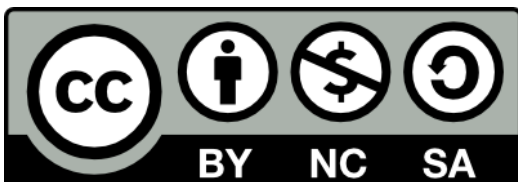
45% = 45/100 = 9/20

That is, 9/20 or  $\frac{9}{20}$  are boys.

## Example

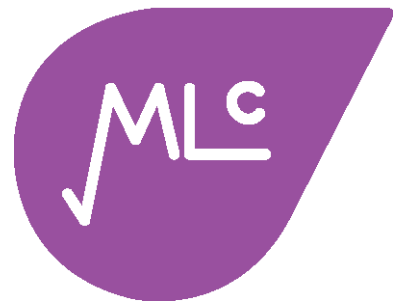
*If the Western Region contributes £15M profits to the Global Total of £370M, what fraction would this be?*

15M/370M = 15/370 = 3/74



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Percentages can also be written as decimals, which can be calculated easily, using a calculator if needed. These decimals are also sometimes called proportions.

### Example

$75\% = 75/100 = 0.75$   
 $0.2\% = 0.2/100 = 0.002$   
 $115\% = 115/100 = 1.15$

*Remember*

*To divide by 100, we move the decimal point two places to the left.*

### Example

*If ABC Ltd gets 28% of its revenue from telesales, what proportion is this?*

$28\% = 28/100 = 0.28$

### Example

*Express the following decimals as fractions and percentages:*

0.55   0.1   0.02   0.007   1.08   0.932

$0.55 = 55/100 = 55\%$   
 $0.1 = 0.1/10 = 10/100 = 10\%$   
 $0.02 = 2/100 = 2\%$   
 $0.007 = 0.7/100 = 0.7\%$   
 $1.08 = 108/100 = 108\%$   
 $0.932 = 93.2/100 = 93.2\%$

### Example

*ABC Ltd has three sales regions: Region A, Region B and Region C. One fifth and  $4/7$  of its total revenue comes from Region A and Region B respectively. What percentage comes from Region C?*

We work out first the total fraction coming from Region A ( $1/5$ ) and Region B ( $4/7$ ):  $1/5 + 4/7 = 0.7714$

This is 77.14% of total revenue (multiply 0.7714 by 100).

The remaining percentage comes from Region C  
 $100\% - 77.14\% = 22.86\%$



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