



# Calculating percentages

## Introduction

This material was drawn from materials developed by the Property Services NTO and Alder Travel as part of their Key Skills Support Programme development project.

A number followed by a percent sign (%) shows a fraction out of a hundred.

Some calculators have a percentage key you can use to calculate percentages. However you do not always have a calculator – or you may need to use another method to check an answer you obtain with your calculator. Here are some methods you can try.

## Using decimals

One way to find the percentage of a quantity is to first convert it to a decimal number. When you have done this, you then multiply your decimal by the quantity.

**For example:**

What's 30% of £800?

Convert to a decimal:  $30\% = 30 \div 100 = 0.3$

Multiply by the quantity:  $0.3 \times 800 = 240$

Answer: £240.00

## Using simple percentages

Another method is to work with simpler percentages. Here are some examples.

**For example:**

To find 20% you can first find 10% then double it.

- 20% of £130 =  $2 \times £13 = £26$

To find 25% (which is the same as a quarter) divide by 4

- 25% of 160 = 40

To find 75% (which is the same as three quarters) divide by 4 then multiply by 3

- 75% of 160 =  $40 \times 3 = 120$

To find 5% find 10% and halve it

- 5% of 80 = 8 divided by 2 = 4

## VAT

If you have a calculator you can calculate VAT at 17.5% by multiplying the pre-VAT total by 0.175. So  $£18 \times 0.175 = £3.15$ .

If you do not have a calculator, you can use the following method to calculate VAT:

To calculate 17.5% of £18

10% of £18 = £1.80

5% of £18 = half of 10% = £0.90

2.5% of £18 = half of 5% = £0.45

So total VAT is £3.15

## Equivalent values

It is often useful to change fractions and decimals to percentages. To change fractions to percentages multiply the fraction by 100:

$$\frac{7}{20} = \frac{7}{20} \times \frac{100}{1} = \frac{7}{1} \times \frac{5}{1} = 35\%$$

$$\frac{4}{5} = \frac{4}{5} \times \frac{100}{1} = \frac{4}{1} \times \frac{20}{1} = 80\%$$

To change decimals to percentages – multiply the decimal by 100:

$$0.35 = 35\%$$

$$0.7 = 70\%$$

$$0.8 = 80\%$$

$$0.97 = 97\%$$

## Some common Percentages

$$10\% = 10/100 = \frac{1}{10}$$

$$50\% = 50/100 = \frac{1}{2}$$

$$25\% = 25/100 = \frac{1}{4}$$

$$75\% = 75/100 = \frac{3}{4}$$

$$100\% = 100/100 = 1$$