What Percentage of Y is X?

Suppose you were asked what percentage of Y is X. We would calculate:

$$\frac{X}{Y} \times 100$$

Example

A class has 28 children. Seven of them play the piano - what percentage of the class is this?

7 / 28 x 100 = 25%

Example

A holiday is reduced from £640 to £520. What percentage reduction is this?

First we need to work out the reduction: 640 - 520 = 120

Then 120 / 640 x 100 = 18.75%

Speed Tip!

1. On a calculator it can be easier and quicker to use the % button. For example, for Example 2, you could just do:

120 / 640 % = 18.75%

2. If you are not using a calculator, it is better to do some cancelling of the fraction first.

Example

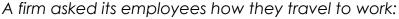*A survey found that 1 in 12 of the population suffers from insomnia. What percentage is this?*

1 / 12 % = 8.33%

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Example

A firm asked its employees how they travel to work:

Car	*47*
Train	*12*
Bus	*30*
Bicycle	*8*
Walking	*51*

(i)   What percentage of employees walk to work?

First we need to work out the total number of employees
47 + 12 + 30 + 8 + 51 = 148
Then we calculate what percentage of this 51 is
51 / 148 % = 34.46%

(ii)   What percentage of employees drive to work?

From the information above, we see that 47 employees drive to work. Then
47 / 148 % = 31.76%

(iii)   What percentage of employees use public transport to get to work?

The train and bus are the forms of public transport on this list. We work out the total number of people who use these forms   12 + 30 = 42

We then calculate this as a percentage of the total
42 / 148 % = 28.38%

(iv)   What percentage of employees walk or cycle to work?

We add together the number of people who walk or cycle
8 + 51 = 59

Then 59 / 148 % = 39.86%

(v) Of those who use public transport, what percentage travel by bus?

We know that 42 employees use public transport, and that 30 of these use the bus.

Then   30 / 42 % = 71.43%

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