

# Percentage Increase and Decrease

## Example

A house price of £225,000 was reduced by 5%. What is the new price?

### Method 1

Step 1 Work out 5% of the asking price

$$225000 \times 5\% = \text{£}11250$$

Step 2 Reduce the price by this amount

$$225000 - 11250 = \text{£}213750$$

### Method 2

Step 1 If the price has been reduced by 5%, then the new price is

$$100\% - 5\% = 95\%$$

Step 2 Calculate 95% of the initial price

$$225000 \times 95\% = \text{£}213750$$

Therefore the new price is £213,750.

## Example

The number of graduates is expected to increase by 4% next year. If 41,000 students graduate this year, how many are expected to graduate next year?

### Method 1

Step 1 Find 4% of 41000

$$41000 \times 4\% = 1640$$

Step 2 Add this to the initial total to find the new total

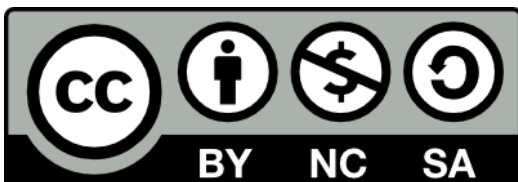
$$41000 + 1640 = 42640$$

### Method 2

Step 1 If the figure is increasing by 4%, then next year's total will be 104% of this year's.

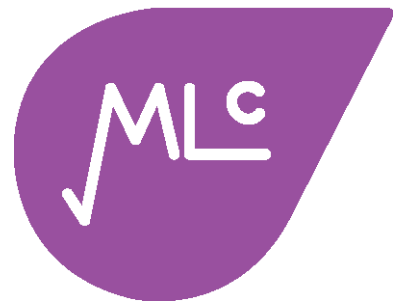
Step 2 Get 104% of this year's total  $104\% \times 41000 = 42640$

Therefore 42,640 students are expected to graduate next year.



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### Example

<u>Sector</u>	<u>Number</u>
Voluntary Work	1400
IT	1105
Engineering	2300
Retail	5145
Self-Employed	2110

- (i) *What percentage of the people sampled work in Retail or IT?*

We add together the number of employees in these sections

$$\text{Retail} + \text{IT} = 5145 + 1105 = 6250$$

We also need the total number of people sampled

$$1400 + 1105 + 2300 + 5145 + 2110 = 12060$$

$$\text{Then } 6250 / 12060 \% = 51.82\%$$

- (ii) *What percentage of workers are self-employed?*

We calculate 2110 as a percentage of the total 12060

$$2110 / 12060 \% = 17.5\%$$

- (iii) *A 12% decrease in voluntary workers is expected. What will the new figure be?*

A 12% decrease means that the new figure will be  $100\% - 12\% = 88\%$  of the existing figure  $1400 \times 88\% = 1232$

- (iv) *If the number of self-employed people increases by 2%, what will the new figure be?*

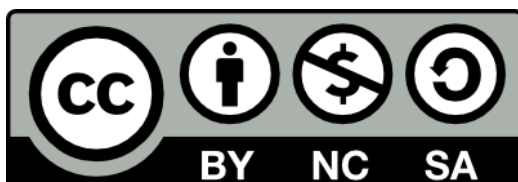
The new figure will be 102% of the existing figure

$$102\% \times 2110 = 2152.2$$

We round the answer to 2152 people.

#### Speed Tip!

1. Method 2 can be faster!
2. When you have an answer, have a quick reread of the question to make sure that you have answered all parts. (e.g. were you supposed to round the answer?)



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