



What is X% of Y?

A percentage is a fraction that has a denominator of 100.

Example $50\% = 50/100$ $10\% = 10/100$ $0.5\% = 0.5/100$

Example (i) Find 15% of 300.
 (ii) What is 20% of 520?
 (iii) If VAT is 17.5%, what is the VAT on a service costing £150?

- (i) $15/100 \times 300 = 45$
- (ii) $20/100 \times 520 = 104$
- (iii) $17.5/100 \times 150 = \text{£}26.25$

Remember
'of' means 'multiply'

Speed Tip!

1. If you are not using a calculator, try and cancel down the fractions first to make the calculations easier.

2. If you are using a calculator, you could:

(i) write the percentage as a decimal:

$$79\% = 0.79 \qquad 5.25\% = 0.0525$$

or

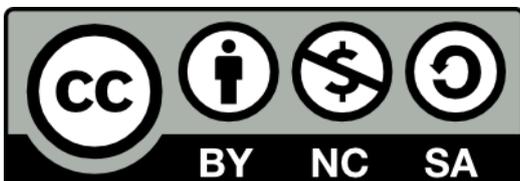
(ii) use the % button:

$$\text{e.g. } 150 \times 17.5\% = 26.25.$$

Example

A bank's interest rate is 2.25% per annum. How much interest would you earn on a balance of £520 after one year?

$$520 \times 2.25\% = \text{£}11.70$$



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Example

A test is marked out of 150. If you achieve 54%, what mark did you get out of 150?

$$150 \times 54\% = 81 \text{ out of } 150.$$

Example

A building society charges 4.2% interest on overdrafts. What will the interest be on an overdraft of £320?

$$320 \times 4.2\% = \text{£}13.44$$

Example

There are 30 children in a class. If 20% of the children are absent, how many children are present?

$$30 \times 20\% = 6$$

There are $30 - 6 = 24$ children present.

Example

A coat is priced at £90, but is then reduced by 25%. What is the new price?

$$90 \times 25\% = \text{£}22.50$$

The new price is then $90 - 22.50 = \text{£}67.50$

Speed Tip!

It is quicker to calculate the final percentage e.g. $90 \times 75\% = \text{£}67.50$

Example

This week's class attendance is expected to decrease by 10% from last week. If last week 130 students attended, how many are expected this week?

Since this week's attendance is a 10% decrease on last week, then it is

$$100\% - 10\% = 90\%$$

of last week's attendance. Then we calculate

$$130 \times 90\% = 117$$

Therefore 117 students are expected this week.



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