



Knowledge Organiser: Percentages

What you need to know:

Percentage of an amount – Non calculator

To calculate any percentage it is useful to start with 10%.

30% of 120: $10\% = 120 \div 10 = 12$ To find 10% we divide by 10.
 $30\% = 3 \times 12 = 36$ To find 30% we multiply 10% by 3.

45% of 80: $10\% = 80 \div 10 = 8$ $5\% = 8 \div 2 = 4$
 $40\% = 4 \times 8 = 32$
 $45\% = 40\% + 5\% = 32 + 4 = 36$ 5% is half of 10% so we divide by 2.

To find 1% we divide the starting amount by 100.

$1\% \text{ of } 30 = 30 \div 100 = 0.3.$

Percentage of an amount – Calculator

When we have a calculator we can use a multiplier; this is the decimal equivalent of the percentage.

80% of 120: $80\% = 0.80$
 $80\% \text{ of } 120 = 0.80 \times 120 = 96$ Change the percentage to a decimal and then multiply.

33% of 90: $33\% = 0.33$
 $33\% \text{ of } 90 = 0.33 \times 90 = 29.7$ Be careful if the percentage is less than 10.

4% of 88: $4\% = 0.04$
 $4\% \text{ of } 88 = 0.04 \times 88 = 3.52$ Take care using decimal percentages, still divide by 100.

12.5% of 42: $12.5\% = 0.125$
 $12.5\% \text{ of } 42 = 0.125 \times 42 = 5.25$

Key Terms:

Percentage: Out of one hundred.

Decimal: A decimal is a fraction written in a special form e.g. 0.6.

Multiplier: This is used to calculate percentages when we have a calculator.

Increase: When an amount goes up.

Decrease: When an amount goes down.

Simple interest: The amount of interest is fixed over period of time.

Compound interest: The interest earned over time will continue to increase.

You need to be able to:

- Calculate a percentage of an amount.
- Use a multiplier to calculate a percentage of an amount.
- Calculate a percentage increase.
- Calculate a percentage decrease.
- Calculate simple interest.
- Calculate compound interest.

Hegarty maths clip numbers

Percentage of Amount: 84 – 87

Percentage Increase/Decrease: 88 – 90

Simple and Compound Interest: 91 – 94





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What you need to know:

Percentage increase and decrease

Increase: To calculate a percentage increase we calculate the percentage and add the value on to the original amount.

Non Calculator: Increase 70 by 65%

$$10\% = 70 \div 10 = 7 \quad 5\% = 7 \div 2 = 3.5$$

$$60\% = 6 \times 7 = 42$$

$$65\% = 60\% + 5\% = 42 + 3.5 = 45.5$$

$$70 + 45.5 = \mathbf{115.5}$$

Calculate 65% by splitting into 10% and 5% and then add the answer on to the original amount.

Calculator: Increase 130 by 26%

$$26\% \text{ of } 130 = 0.26 \times 130 = 33.8$$

$$130 + 33.8 = \mathbf{163.8}$$

Calculate 26% using a multiplier and add this answer onto the original amount.

Decrease: To calculate a percentage decrease we calculate the percentage and subtract the value off the original amount.

Non Calculator: Decrease 20 by 35%

$$10\% = 20 \div 10 = 2 \quad 5\% = 2 \div 2 = 1$$

$$30\% = 3 \times 2 = 6$$

$$35\% = 30\% + 5\% = 6 + 1 = 7$$

$$20 - 7 = \mathbf{13}$$

Calculate 35% by splitting into 10% and 5% and then subtract the answer off the original amount.

Calculator: Decrease 65 by 14%

$$14\% \text{ of } 65 = 0.14 \times 65 = 9.1$$

$$65 - 9.1 = \mathbf{55.9}$$

Calculate 14% using a multiplier and subtract this answer off the original amount.

Simple interest

To calculate simple interest we start by calculating the percentage and multiplying it by the period of time.

Example: £250 is in a bank account which is paying 5% simple interest per year. How much will be in the bank account at the end of 3 years?

$$5\% = 0.05$$

$$0.05 \times 250 = \pounds 12.50$$

$$3 \times \pounds 12.50 = \pounds 37.50$$

$$\pounds 250 + \pounds 37.50 = \pounds 287.50$$

Multiply by 3 because the question asks for 3 years.

Add your answer to the original amount in the question.

Compound interest

To calculate compound interest we use powers as the amount changes at the end of each year.

Example: £250 is in a bank account which is paying 4% compound interest per year. How much will be in the bank account at the end of 5 years?

$$4\% \text{ increase} = 1.04$$

$$1.04^5 \times 250 = \pounds 304.16$$

Interest means an increase so $100\% + 4\% = 104\%$ which as a multiplier is 1.04

Power of 5 because the questions asks for 5 years.

This is the final answer