

# **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: 
$$10\% = 120 \div 10 = 12$$

$$30\% = 3 \times 12 = 36$$
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% =  $8 \div 2 = 4$   
 $40\% = 4 \times 8 = 32$  5% is half of 10% so we divide by 2.

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

$$1\%$$
 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.

## **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.

# **Hegarty maths clip numbers**

Percentage of Amount: 84 – 87

Percentage Increase/Decrease: 88 – 90

Simple and Compound Interest:

91 – 94

#### 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.

# **Knowledge Organiser: Percentages**

#### 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%

$$10\% = 70 \div 10 = 7$$
 5% =

$$5\% = 7 \div 2 = 3.5$$

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

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

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

70 + 45.5 = **115.5** 

Calculator: Increase 130 by 26%

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%

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

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

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

20 - 7 = **13** 

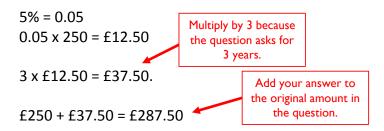
Calculator: Decrease 65 by 14%

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?



# 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

