

Key Vocabulary

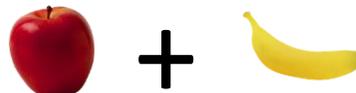
Expression	Numbers, symbols and operators (such as + and x) grouped together that show the value of something. E.g. $2 + x$
Term	In Algebra a term is either a single number or variable. Terms are separated by + or - signs
Equation	An equation says that two things are equal. $4x - 7 = 5$
Formula (formulae)	An equation that has a real life context. Area = width x height
Variable	A variable is a letter, for example x, y or z, that represents an unspecified number. $6 + x = 12$.
Substitute	Replacing a "letter" with a given value
Like terms	Terms those variables are the same.
Simplify / Collect	Grouping the like terms together
Metric	A system of measuring based on
Imperial	Unit of measuring: inches, feet, yards, pounds, ounces, ounces, gallons.
Mile	An imperial unit of measure approximately 1.6 kilometres
Kilometre	A metric unit of measurement equal to 1,000 metres or approximately 0.62miles

Key facts / Diagrams

- Letters in an expression represent **unknown** numbers. We use this to shorten word problems

Example:

I have apples and bananas and I add them all together. Write a formula to explain this.



$a + b$

- We then give the letters a value. We substitute (replace) the letters with a number.

There are 2 apples and 3 bananas



$a=2$ $b=3$

$a + b$ $2 + 3 = 5$

- We can write our own one-step algebraic formula given information:

Crisps cost 15p per bag. Write a formula for the total cost of buying a number of bags.

$15 \times b$

Common misconceptions

- Some pupils may apply the order of operations incorrectly when working with two step formulae
- Units must be consistent when using formulae. For example, a mobile phone plan might charge £15 per month plus 5p for every text. The formula 'Monthly cost = 15 + 5 x number of texts' is wrong because amounts in both pounds and pence are involved. Monthly cost (in pence) = 1500 + 5 x number of texts is one correct way of writing the formula.
- It is not advisable to abbreviate the formula 'kilometres = miles x 1.6' using letters. 'm' is the normal abbreviation for metres and 'k' can represent £1000. If 'km' is used it could even be interpreted as 'k x m'.

Worked examples

Write your own a two-step formula from given information

I think of a number (n), I triple it. After that I then subtract 5. Write a formula for my answer (x).

$\times 3 = a$

$- 5 = \text{answer } (x)$

Answer:

$n \times 3 = a$

$a - 5 = x$