

Introduction to Algebra

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★ By the end of the lesson I would hope that you have an understanding of the concepts below:

- Know what a pronumeral is
- Know what a variable is
- Know what a term is
- Know what a constant is
- Know what an expression is
- Know what an equation is
- Know a co-efficient is
- Know how to decode English into Maffs!

RECAP:

This is probably the first time that many of you will have met Algebra ... so there isn't much of a recap. Let's get right into this!

Remember one thing and you'll have this Algebra **BEATEN**

MATHS IS A BIG FAT TRICK!

Starting simplez ...

The difference between an **equation** and an **expression**:

$$3x + 4 = 6 \quad \leftarrow \text{Eq}^n$$
$$3a + 3b - 4c + 6 \quad \leftarrow \text{Exp}$$

Let's throw some confusing language in!

We all know how to read stuff!

We all know that if we understand what the word means, then we can understand the context of the questions.

The diagram shows two algebraic expressions with annotations. The first expression is $3a + 4b - 6c + 7$. Each term ($3a$, $4b$, $-6c$, and 7) is highlighted in yellow. Red arrows point to each term, and red arrows point up to the variables a , b , and c . A blue arrow points to the entire expression. The second expression is $6xy$, also highlighted in yellow, with two red arrows pointing up to the variables x and y .

Term: Something which might have numbers and letters stuck together.

Pronumeral: A letter!

Term: Something which might have numbers and letters stuck together.

Pronumeral: A letter!

Constant: A term without a letter (so a number really!)

Coefficient: The number in front of a term.

Variable: Something which can have a different size (or amount in Maths).

How is this used in Maths?

Let's look at some examples then!

Example 1: Provided from the Cambridge Essentials Textbook series

List the individual terms in the expression $3a+b+13c$.

$3a$
 b
 $13c$ b

State the coefficient of each pronumeral in the expression $3a+b+13c$.

3 13
 1

Give an example of an expression with **exactly two terms**, one of which is a **constant term**.

$7p + 3$

Marrying English and Maffs!

The problem with Algebra isn't the Maffs ... it's the English!

If we don't understand all the words which might be used and how they are also Mathematics language, then we are stuffed!

"More than"

"Less than"

"Sum"

"Double"

"Product"

"Halved"

"Divided by"

"Subtracted"

"Tripled"

"Lots of"

"Tripled"

"Lots of"

Get the above sorted And you can't go wrong in this Algebra stuff!

Example 2: Provided from the Cambridge Essentials Textbook series

Write an expression for each of the following.

5 more than k

$$k + 5$$

3 less than m

$$m - 3$$

the sum of a and b

$$a + b$$

double the value of x

$$x \times 2 = x2 = \underline{\underline{2x}}$$

the product of c and d

$$c \times d = \underline{\underline{cd}}$$

Example 3: Provided from the Cambridge Essentials Textbook series

Write an expression for each of the following without using the \times or \div symbols.

p is halved, then 4 is added

$$\frac{p}{2} + 4$$

the sum of x and y is taken and then divided by 7

$$\frac{x + y}{7}$$

$$\frac{1}{7} \text{ of } y$$

$$y \div 7$$

the sum of x and one-seventh of y

$$x + \frac{y}{7}$$

$$\frac{y}{7}$$

5 is subtracted from k and the result is tripled

$$(k - 5) \times 3$$