



MATHS- ALGEBRA

YEAR 6

b			
3	3	3	3

RECAP

- Recognise and use the inverse relationship between multiplication and division and addition and subtraction.
- Use the inverse to solve missing number problems.

CRUCIAL KNOWLEDGE

- Algebra is the part of maths in which letters and symbols are used to represent numbers and formulae.
- A simple formula is a rule, written using numbers and letters, that helps to work out things like volume, or patterns.
- A linear number sequence increases or decreases by the same amount each time and can be described using a rule.
- Missing number problems can be written using algebra, where a letter stands for the number we don't know.
- Some number sentences have two unknown numbers, and there can be different pairs of numbers that make the sentence true.

Forming equations

$$a + 14 = 20$$

$$b - 20 = 15$$

$$4c = 28$$

$$d + 12 = 30$$

$$3e - 5 = 10$$

$$2(f + 12) = 44$$

An **equation** is a number statement with an equal sign (=). **Expressions** on either side of the equal sign are of **equal value**.

14	
a	a

$$2a = 14$$

b			
3	3	3	3

$$b = 3$$
$$4$$

I subtract 3 from my number. I get the answer 10

$$x - 3 = 10$$

I have doubled my number and added 5. My answer is 19

$$2x + 5 = 19$$

Find pairs of values

In an equation with two unknown numbers, we need to use our understanding of substitution and trial and error or work systematically to consider what possible values a pair of variables can take.

$$ab = 18$$

a	b
1	18
2	9
3	6
6	3
9	2
18	1

$$2a + b = 10$$

a	b
2	6
3	4
4	2
5	0

Forming expressions

An **expression** is a group of numbers, letters and operation symbols.

Add 14 to a

$$a + 14$$

Subtract 20 from b

$$b - 20$$

Multiply c by 4

$$4c$$

12 more than d

$$d + 12$$

Multiply e by 3 and subtract 5

$$3e - 5$$

Add 12 to f and then multiply by 2

$$2(f + 12)$$

Enumerate possibilities

Enumerating means making a complete list of answers to a problem. Use a system to find the possibilities and organise your findings in an ordered list or table.

There are four ice cream flavours.

Two scoops of two different flavours give 6 possible combinations:

- Chocolate and strawberry
- Chocolate and vanilla
- Chocolate and mint
- Strawberry and vanilla
- Strawberry and mint
- Vanilla and mint

Substitution

If $\star = 7$ and $\heartsuit = 5$, what is the value of:

$$\star + \heartsuit + \heartsuit$$
$$7 + 5 + 5 = 17$$

Substitute the following to work out the values of the expressions.

$$w = 3 \quad x = 5 \quad y = 2.5$$

$$w + 10 = 3 + 10 = 13$$

$$w + x = 3 + 5 = 8$$

$$y - w = 2.5 - 3 = -0.5$$

KEY VOCABULARY

Expression	A group of letters, symbols and operation symbols.	Term-to-term rule	Describes how to find the next term in a sequence based on the previous term
Equation	An equation contains an equals sign (=). Expressions on either side of the equals sign hold an equal value.	Substitution	If we are given the value of the letters in an expression, we can substitute them to work out the value of the expression.
Formula	A type of equation which shows us the relationship between different variables. We often use formulas in geometry and in science.	Enumerate	Finding all of the possible answers to a problem