Year 6 **Algebra**

Key Vocabulary
formulae
linear number sequences
algebraically
expressions
equation
unknowns
combinations
variables

Linear Number Sequences

A linear number sequence is a sequence of values that increases or decreases by the same amount each time. To work out the rule of how much the values increase or decrease each time, you need to work out the difference between two adjacent values. Look at the example below:

The value is increasing by 4 each time so the missing value is **16**.

4	8	12	?	20	24

+ 4 + 4

Other examples

3	2.3	1.6	0.9	0.2	?

- 0.7 - 0.7

$\frac{3}{7}$	$\frac{5}{7}$	?	$1\frac{2}{7}$	?	$1\frac{6}{7}$

+ $\frac{2}{7}$ + $\frac{2}{7}$ + $\frac{2}{7}$

Equations

An equation is two expressions either side of an = sign.

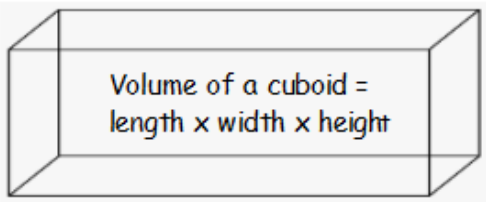
5c = 15
a - 10 = 20
b + 25 = 40
2e - 5 = 15
3(d + 8) = 30

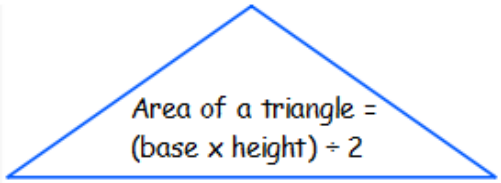
The expressions on either side of the = sign are of equal value.

Formulae

Formulae are a groups of words, symbols and numbers used to work something out.
For instance, they are often used to work out the area, perimeter or volume of different shapes.

Area of a rectangle = length x width





Expressions

An expression is a combination of numbers, letters and operations.

5c	5 x c
e + 20	20 more than e
5d + 7	Multiply 5 by d and then add 7
3(7-4)	Subtract 4 from 7 and then multiply by 3

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Finding Pairs of Values

When dealing with equations with two unknown values, there may be several possible values that will balance the equation.

$ab = 16$

a	b
1	16
2	8
4	4
16	1
8	2
4	4

$2a + b = 7$

a	b
0	7
1	5
2	3
3	1

Input and Output Machines

One-step rules

Input → × 3 → Output

7 → 21

Two-step rules

Input → + 4 → ÷ 3 → Output

11 → 5

To find the input from the output, do the inverse.

Input → × 4 → Output

? → 16

$16 \div 4 = 4$

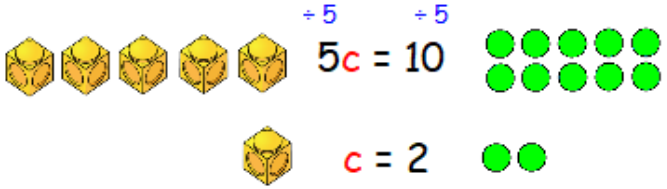
$? = 4$

Solving Equations

One-step

$5c = 10$

To find the value of c we need to use the inverse. We know 5 lots of c is 10 so we need to divide 10 by 5 to find c.



We do the same calculation to both sides of the equation.

Two-step

$2e + 1 = 7$

The same applies to two-step equations. This time we need to use two inverse operations to find the value of e.