

An **equation** contains an unknown number (letter) and an equals (=) sign.

You **solve** an equation by working out the value of the unknown.

[Video 110 - https://tinyurl.com/y866296z](https://tinyurl.com/y866296z)

In an equation, both sides of the = sign have the same value (like balanced scales). As with balanced scales, the two sides remain equal if the same is done to both sides (**balancing method**).

In an equation with **brackets**, expand the brackets first.

To expand brackets, multiply everything within the brackets by any multiplier on the outside.

A **formula** is an equation with two or more **variables** (unknown numbers).

Values can be **substituted** into a formula to get results.

[Video 113 - https://tinyurl.com/y76yatx2](https://tinyurl.com/y76yatx2)

Key Points:



<https://tinyurl.com/y9cavj7r>

An **integer** is a positive or negative whole number, or a zero.

< means **less than** (the thing on the left is less than the thing on the right)

> means **greater than** (left side greater than right side)

≤ means **less than or equal to** (like less than, but the two sides might be equal)

≥ means **greater than or equal to** (like greater than but the two sides might be equal)

[Video 176 - https://tinyurl.com/y7py6cf9](https://tinyurl.com/y7py6cf9)

You **MUST** do the **SAME** to **BOTH** sides of an equation or inequality

[Video 178 - https://tinyurl.com/hkxkrvk](https://tinyurl.com/hkxkrvk)

**Inequalities** can be shown on number lines with empty circles (for less than or greater than) or filled circles (if value could be equal) and arrows in correct direction.

[Video 177 - https://tinyurl.com/y72g4v69](https://tinyurl.com/y72g4v69)

Knowledge Check:



<https://tinyurl.com/y96fhs9v>

**Sequences** are patterns of numbers that follow a rule.

The numbers in a sequence are called **terms**.

[Video 286 - https://tinyurl.com/ydaj355k](https://tinyurl.com/ydaj355k)

The **term-to-term** rule describes how to get from one term to the next.

[Video 287 - https://tinyurl.com/y7mp8hdf](https://tinyurl.com/y7mp8hdf)

The ***n*th** term of a sequence is how to work out the term given its position (*n*) in the sequence.

[Video 288 - https://tinyurl.com/hs9qnsx](https://tinyurl.com/hs9qnsx)

The ***n*th** term is sometimes called the **general term** of a sequence.

In a **linear sequence** (same difference between each pair of terms) the *n*th term is found by multiplying the position by the difference between the first and second terms, then adding or subtracting a constant to make the output when *n* = 1 actually equal the first term.

As with all mathematical calculations, please remember to use **BIDMAS**:

**Brackets** then **Indices** then **Division & Multiplication** then **Addition & Subtraction**

[Video 211 - https://tinyurl.com/y98jn4wk](https://tinyurl.com/y98jn4wk)