

A **proof** is a logical argument for a mathematical statement. It shows that something *must* be either true or false.

The most simple method of proving something is called **direct proof**. It's sometimes also called deductive proof. In direct proof, you rely on statements that are already established, or statements that can be assumed to be true, to show by deduction that another statement is true (or untrue).

Examples of statements that can be assumed to be true include 'you can draw a straight line segment joining any two points', and 'you can write all even numbers in the form $2n$ and all odd numbers in the form $2n - 1$ '.

Statements that can be assumed to be true are sometimes known as **axioms**.

To use direct proof you

- Assume that a statement, P , is true.
- Use P to show that another statement, Q , must be true.

Key point