

## Section 2: Notation and proof

### Crucial points

1. **Be careful with notation**

Use the symbols  $\Rightarrow$ ,  $\Leftarrow$  and  $\Leftrightarrow$  carefully. Make sure that you only use  $\Leftrightarrow$  when one condition is true if and only if the other is also true.

2. **Think carefully about the meaning of mathematical statements**

Remember that if a statement is true, this does not necessarily mean that its converse is true.  $A \Rightarrow B$  does not mean that  $B \Rightarrow A$ . If the converse is true, then you can write  $A \Leftrightarrow B$ .

3. **Make sure that a proof really is a proof**

Remember that to prove a result, you must show that it is true in **all** possible cases. If it is not possible to test all cases, then you need to generalise.