

Section 2: Proof by induction

Crucial points

1. **Understand the concept**

Make sure that you really understand the principle behind proof by induction. The Notes and Examples should help.

2. **Always think about what you are aiming for!**

When you take the assumed result for $n = k$ and add on the $(k + 1)$ th term, you want to rearrange this to get the formula for $n = k + 1$. It may help to actually write down the result you are looking for.

3. **Be careful with algebraic manipulation**

It is easy to make mistakes. Thinking about the result you are aiming for (see above) often helps, as it may give you a clue about what factors you could take out.

4. **Make sure that you write out the proof correctly**

Remember that there are three steps involved, and you will lose marks if you don't, for example, write down the conclusion of the argument (Step 3).