

Mathematical Induction Template

Base Case: (Show that the result is true for $n = 0$.)

⋮

Inductive Step: Assume that the result is true for $n = k$. Consider the case where $n = k + 1$. (Manipulate one of the expressions involved so that you can apply the *inductive hypothesis* to establish the truth of the result for $n = k + 1$.)

⋮

(Concluding Remarks) Since we have shown that

1. The result is true for $n = 0$.
2. If the result is true for $n = k$, then the result is true for $n = k + 1$.

It follows by the principle of mathematical induction that the result is true for all $n \in \mathbb{N}$.