 Identifying the steps of induction

Task

1. Label: assumption, first case, inductive step, initial statement
2. Complete the proof

Question

Prove by induction that for

Solution

**Step 1: Prove for**

. Therefore, true for .

**Step 2: Assume true for**

**i.e.**

**Step 3. Prove true for**

**i.e.** Prove

**Step 4: Conclusion**

If true for , proven true for . Proven true for , therefore true for ,   
.. Therefore is true for all natural numbers.