the principle of mathematical induction

and it stays true

then it's always true

the principle of mathematical induction

let P be some predicate

$$\boxed{\text{If } P(0) \text{ is true and } \forall k \in N \; P(k) \rightarrow P(k+1), \text{ then } \forall n \in N \; P(n)}$$

if it starts true   *and it stays true*   *then it's always true*

- it is true for 0
- since it's true for 0, it's true for 1
- since it's true for 1, it's true for 2
- since it's true for 2, it's true for 3
- since it's true for 3, it's true for 4

⋮

proof by induction