



the principle of mathematical induction







if it starts to



and it stays true





then it's always true



# the principle of mathematical induction

let  $P$  be some predicate

If  $P(0)$  is true and  $\forall k \in N P(k) \rightarrow P(k + 1)$ , 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
- $\vdots$

proof by induction