Principle of Induction – Review

Theorem (Induction)

$$[P(1) \wedge (\forall k \in \mathbb{N}, P(k) \implies P(k+1))] \implies \forall n \in \mathbb{N}, P(n).$$

- If we want to show $\forall n \in \mathbb{N}, P(n)$;
- First show the **base case**

$$P(1),$$

- Then show the **induction step**:

$$\forall k \in \mathbb{N}, P(k) \implies P(k+1).$$