For strong induction

For example, suppose you want to prove that $f(n) = 0$ for all $n \in \mathbb{Z}^+$.

You say $P(n)$ asserts that $f(n) = 0$, and you check base cases $n = 1, 2$.

Your Inductive Hypothesis is: for some arbitrary $n \geq 2$, $P(k)$ is true for all integers k between 1 and n

You now want to show that $P(n + 1)$ is true.

Notes:

- You do not say you want to show that $P(k + 1)$ is true.
- You do not say $P(k) = 0$
- You do not say $f(n)$ is true
- Your Inductive Hypothesis is not "for some arbitrary $n \geq 3$"
- Your Inductive Hypothesis is not "for some arbitrary $n \geq 2$ and for all k between 1 and n, $P(n)$ is true"