Finishing the Induction Proof

Recall $f : \mathbb{Z}^+ \times \mathbb{Z}^+ \to \mathbb{Z}^+$, and the inductive hyopthesis is:

> $P(K) : f(n, m) \geq n + m$ for all positive integers n, m with $n + m \leq K$

To finish the induction proof, we need to show $P(K) \to P(K + 1)$, which is equivalent to showing

$$P(K) \to \forall n, m \text{ such that } n + m \leq K + 1, f(n, m) \geq n + m$$

However, since the I.H. assumes $f(n, m) \geq n + m$ whenever $n + m \leq K$, we only need to show that

- $P(K) \to f(n, m) \geq n + m$ whenever $n + m = K + 1$.