

The base case

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

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

The smallest value for $n + m$ is 2; hence, the base case is $K = 2$.

When $K = 2$, $n = m = 1$ and the statement holds.