

Class exercise

Let $f : \mathbb{Z}^+ \times \mathbb{Z}^+ \rightarrow \mathbb{Z}$ be defined by

- ▶ $f(1, x) = x = f(x, 1)$ for all $x \in \mathbb{Z}^+$
- ▶ $f(a, b) = \max\{f(a-1, b) + b, f(a, b-1) + a\}$ if $a \geq 2$ and $b \geq 2$

Compute $f(a, b)$ for all a, b with $1 \leq a, b \leq 3$.

What do you think the closed form solution should be?

What will your Inductive Hypothesis be?

At home: use induction to prove your closed form solution correct.
(Note: do you need strong induction?)