

1. What is your name?

Brock Francom

2. Write two paragraphs that explain why the following proposition is true:

$$k \subseteq \omega \times \mathbb{N} \ni k = \{ (n, k(n)) : n \in \omega \wedge k(n) = n+1 \} \rightarrow (k : \omega \xrightarrow{1:1} \mathbb{N} \wedge k : \omega \xrightarrow{\text{onto}} \mathbb{N})$$

k is a subset of the subset of all non-negative integers crossed with the set of all positive integers. In other words, k is a relation of $\omega \times \mathbb{N}$. Such that $k =$ the set of $(n, k(n))$ where n is in the set of all non-negative integers, and $k(n) = n+1$. I.P. and only if k is a one to one function mapping ω to \mathbb{N} and onto function from ω to \mathbb{N} .

This is true because $\omega = \{0, 1, 2, 3, \dots\}$ and $\mathbb{N} = \{1, 2, 3, \dots\}$, and the function $k(n)$ maps ω onto \mathbb{N} and you have the following set $\{(0, 1), (1, 2), (2, 3), (3, 4), (4, 5), \dots\}$. These pairs are a one to one mapping from ω to \mathbb{N} .

3. Smile.