

Computability Assignment

Year 2012/13 - Number 1

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1 Question

Define a binary property $p(x, y)$ over natural numbers such that we have both

1. $\forall x \in \mathbb{N}. \exists y \in \mathbb{N}. p(x, y)$
2. $\neg \exists y \in \mathbb{N}. \forall x \in \mathbb{N}. p(x, y)$

Provide a definition for p , and a proof for the above claims.

1.1 Answer

Write your answer here.

$$\neg \exists y \in \mathbb{N}. \forall x \in \mathbb{N} = \forall y \in \mathbb{N}. \neg \forall x \in \mathbb{N} = \forall y \in \mathbb{N}. \exists x \in \mathbb{N}. \text{not } p(x, y)$$

$$\text{def. } p(x, y) = x < y.$$