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

the binary property of p(x,y) is x-y=0.

Proof:

for statement 1: For all x that is Natural number, there is a value of y which also a natural number, that makes statement x-y=0. Of course, for all of x, there exist a certain value of y so that the binary property is true. So it is proved

for statement 2: It's not exist value of y that can makes binary property x-y=0 becomes fulfilled for All of value x. Of course it's logical that a value of y will vary depends on the value of x. There will be no exist a value of y so that the binary property is correct for All value of X.