

Answer on Question #63196 – Math – Discrete Mathematics

Question

Define $Q(q)$: for all values of $p \in \mathbb{N}$, where $p < q$ such that NOT(there exists $k \in \mathbb{N}$, where

$$(q = k * p) \wedge (k < q)).$$

Concisely, for which numbers $q \in \mathbb{N}$, when $Q(q)$ is true?

Solution

Let \mathbb{N} be a set of numbers. Obviously, the statement $Q(q)$ is true for number $q \in \mathbb{N}$ iff the subset of its proper factors, i.e. all factors strictly less than itself, is empty or consists of one element.

Let \mathbb{N} denote the set of natural numbers. The statement $Q(q)$ is true iff q is a prime number or 1.