1. Let . Let ,and be a collection of all sequence of elements of . Show that there is an injection

Well-ordered property of Natural number

\*) Any nonempty subset of Natural number has its infimum (minimum).

Using well-ordered property of Natural number, prove the following.

Let . Let be some subset of such that for any

implies .   
if is nonempty, then .

(This statement is called mathematical induction.)