RZ: Please edit the provided L_YX file instead next time.

Solution

Let p be the property of 'successorship' over N, given by p(x) = x + 1, i.e. $p = \{(x, x + 1) | x \in \mathbb{N}\}$

Now property 1, which is $\forall x \in \mathbb{N}, \exists y \in \mathbb{N}. p(x, y)$, is trivially satisfied, since by definition of p, for all $x \in \mathbb{N}$, exists y = x + 1 such that p(x, y) holds.

Now property 2, which is $\exists y \in \mathbb{N} . \forall x \in \mathbb{N} . p(x, y)$ is satisfied. By contradition if property 2 is not satisfied then there exists $y \in \mathbb{N}$, such that for all $x \in \mathbb{N}$, p(x, y) holds. This implies that if x' = x + 1, p(x, y) and p(x', y), which implies that y = x + 1 = x + 1 + 1, which is a contradition