IP(IN)=IN

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Abstract
In this page I will prove that IP(IN)=IN using the Zermelo's natural Numbers costruction.

Definition Zermelo's natural Numbers
Set 0= {} the empty set
Define S(a)={a} for every set a. S(a) is the successor of a, and S is called the successor function.

Example
0={}
1={0}={{}}
2={1}={{{}}}
…
n={n-1}={{{…{}…}}}

Definition the power set
The power set of a set S is the set of all subsets of S, including the empty set and S itself.
The power set is Denotated IP(S)

Example
IP({1,2,3}={{},{0},{1},{2},{3},{1,2},{2,3},{1,3},{1,2,3}}

Theorem
IP(IN)=IN

Proof
IP(IN)={{},{0},{1},{2},{3},…,{1,2},{2,3},{1,3},…,{1,2,3}…,IN}
But {1} is in {2} that is in {3} etc.
Then {1,3}={1}U{3}={3}
So IP(IN)={0,1,2,3,4,…,3,4,4,…,4,…,IN}={0,1,2,3,4,…,IN}=IN