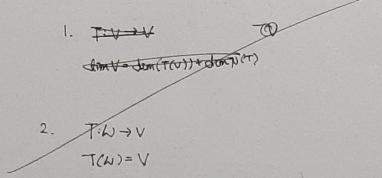
- 7. (12 points) Recall that an *isomorphism* between two vector spaces V and W is a linear transformation $T:V\to W$ that is one to one and onto (i.e. T(V)=W). In this case we say that V is isomorphic to W. Prove any TWO of the following.
 - 1. Show that V is isomorphic to itself.
 - 2. Show that if V is isomorphic to W then W is isomorphic to V.
 - 3. Show that if V is isomorphic to W and W is isomorphic to U then V is isomorphic to U.



1. Tally by ten from the service on Tivovice of the service of the

Of Consider (moon transformation that images every elements of V to mes therefores then it is one-to-one and artic

2. T(V) = W dem V = dem(T(v)) + demN(T)Since it is aneroone & onto $dem V = dem(T(v)) \Rightarrow dem V = dem W$ T(W) = V dem W = dem(T(W) + demN(T))Since it has to be one-to one dem and dem W = dem V dem W = dem(T(W)) + demN(T) dem W = dem(T(W)) + dem(W) dem W = dem(W

Since it has to be one-to-one day and demons denvi de demotion = dem v. it is one-to-one and howy same dumansion so wis isomorph

3. T(U) = W T(W) = U T(T(V)) = U T(V) = USo there in exist (mean training)

so there was transformation that satisfy T(v) = U