

## Quiz 4

Name:

1. Let  $V$  and  $W$  be vector spaces.
  - (a) Define what is an isomorphism between  $V$  and  $W$ .
  
  
  
  
  
  
  
  
  
  
  - (b) Define what is means for  $V$  to be isomorphic to  $W$ .
  
  
  
  
  
  
  
  
  
  
2. Let  $V$  and  $W$  be vector spaces. Let  $T : V \rightarrow W$  and  $U : W \rightarrow V$  be linear transformations so that  $U \circ T : V \rightarrow V$  is an isomorphism. Prove that  $T$  is one-to-one.