

## Quiz 7

Name:

1. Prove or give a counterexample: Let  $T_1 : V \rightarrow V$  be a linear transformation with eigenvalue  $\lambda_1$  and  $T_2 : V \rightarrow V$  be a linear transformation with eigenvalue  $\lambda_2$ . Then  $\lambda_1 + \lambda_2$  is always an eigenvalue for  $T_1 + T_2$ .
2. Prove or give a counterexample: Let  $T : V \rightarrow V$  be a linear transformations with eigenvalue  $\lambda$ . Then  $\lambda^k$  is always an eigenvalue of  $T^k$  for any positive integer  $k$ .