Quiz 13; Wednesday, November 29
MATH 110 with Professor Stankova
DSP
GSI: Saad Qadeer

Student name: _____

You have 10 minutes to complete the quiz. Calculators are not permitted. Please include all relevant calculations and explanations (unless stated otherwise).

1. (12 points) Let T and U be self-adjoint operators on an inner product space V. Show that TU is self-adjoint if and only if $TU = UT$.

2. (1 + 1 + 1 points) Mark each statement as True or False. You do not need to show your work but a blank answer is worth 0 points and an incorrect answer is worth -1 point.

   (a) The product of two self-adjoint operators is always self-adjoint.

   (b) Every orthonormal set is linearly independent.

   (c) A non-zero strictly upper triangular real matrix is not orthogonally diagonalizable.