

Math 132 - HW 16

due March 11

March 4, 2015

1. Give an example of each of the following and explain why it is an example, or prove that an example doesn't exist:
 - (a) A diagonalizable operator.
 - (b) A non-diagonalizable matrix over the real numbers that is diagonalizable over the complex numbers.
 - (c) A non-diagonalizable operator on a complex vector space.
 - (d) A diagonalizable operator that is not invertible.
 - (e) A self-adjoint operator.
 - (f) A normal operator that is not self-adjoint.
 - (g) An operator that is not normal.
 - (h) A self-adjoint operator that is not normal.
 - (i) A normal operator that is not unitary.
 - (j) A unitary operator that is not self-adjoint.
 - (k) A unitary operator that is not invertible.
 - (l) A self-adjoint operator that is not unitary.
 - (m) An orthogonal operator that is not diagonalizable.
 - (n) A unitary operator that is not diagonalizable.
2. Find three problems on past homeworks that you were not able to figure out, didn't get around to doing, or got wrong and try again!