MATH 124 QUIZ 18 NOVEMBER 2 2016

Name:

Problem 1: Consider the matrix

$$A = \begin{pmatrix} 2 & -1 & 2 \\ -1 & 1 & 0 \\ 0 & -2 & -4 \\ 1 & 1 & 4 \\ -3 & 2 & -2 \end{pmatrix}.$$

a) Write down the columns of the matrix A as separate vectors.

b) The column space of A is a subspace of $\mathbb{R}^n$ for some n. What is the value of n?

c) Is it possible for the column rank of A to be 4? Why or why not?

d) Write down the rows of the matrix A as separate vectors.

e) The row space of A is a subspace of $\mathbb{R}^m$ for some m. What is the value of m?

There is another question on the back.

f) Is it possible for the row rank of A to be 4? Why or why not?