MATH 260, Homework 4, Spring '14
Due: February 7, 2014
Honor Code: **Name:**

1) Consider the augmented matrix below.

$$\mathbf{A} = \left[\begin{array}{ccc|c} 1 & 1 & -2 & -1 \\ 0 & -1 & 2 & 3 \\ 3 & 2 & -4 & 0 \\ 4 & 3 & -6 & -1 \end{array}\right]$$

a) (4 pts) Write the linear system the augmented matrix above represents.

b) (16 pts) Use Gauss-Jordan elemination to put the above augmented matrix in reduced row-eschelon form (RREF). Specify the operations used at each step.

c) (2 pts) What rank does the augmented matrix have?

d) (3 pts) Give the solution(s), if any, of the linear system you wrote in part (a).

2) Consider the agumented matrix below.

$$\mathbf{B} = \left[\begin{array}{ccc|c} 1 & 0 & 1 & 3 \\ 0 & 1 & 1 & 1 \\ 0 & 1 & a & 1 \end{array} \right]$$

a) (4 pts) What value(s), if any, of a make the associated linear system have an infinite number of solutions?

b) (4 pts) What value(s), if any, of a make the associated linear system have no solution?

c) (4 pts) What value(s), if any, of a make the associated linear system have a unique solution?