MATH 133: Vectors, Matrices and Geometry

Written Assignment 2

Due in tutorial or by Friday 1pm the week of Sept 29, 2003

Write the name of the tutor and tutorial section number

in the top right corner of the first page

Justify all of your assertions

Problem. Consider the system of equations

$$\begin{aligned} kx + y + z &= 1, \\ x + ky + z &= 1, \\ x + y + kz &= 1 \end{aligned}$$

where k is a parameter.

(a) Find the values of k for which the system has

- (i) a unique solution;
- (ii) an infinite number of solutions;
- (iii) no solution.

(b) Solve the system for cases (i) and (ii) and interpret geometrically.