MATH 133: Vectors, Matrices and Geometry

Written Assignment 3

Due in tutorial or by Friday 1pm the week of October 6, 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. Let u, v, w, z be vectors in $\mathbb{R}^n$ and suppose that u, v, w are linearly independent. Prove or disprove the following statements:

(a) $u + z, v + z, w + z$ are linearly independent;

(b) $u + 2v - 3w, 2u + v - w, 3u - v + 2w$ are linearly dependent;

(c) $u + v + w, u + 2v + 3w, 2u + 3v + w, 3v + u + 2w$ are linearly independent.