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.