Math 544 Feb 22, 2001
Linear Algebra
Spring 2001, USC

QUIZ 4

Time: 10min

1. True or flase? Justify your answer.

(a) If none of the $\mathbf{R}^3$ vectors in the set $S = \{\mathbf{v_1}, \mathbf{v_2}, \mathbf{v_3}\}$ is a multiple of one of the other vectors, then S is linearly independent.

(b) If a system of linear equations has two different solutions, then it must have infinitely many solutions.

Each part is worth 5 *points.*

Bonus (5 points) Let $T: \mathbf{R}^n \to \mathbf{R}^m$ be a linear transformation. Prove that T is one-to-one if and only if the equation $T(\mathbf{x}) = \mathbf{0}$ has only the trivial solution.

LaTeX ..... $\mathcal{MG}$