Math 415 - Applied Linear Algebra
Fall 2010, section D1
Exam 2 review sheet

Here are the types of questions you should be able to answer and explain on exam 2.

- Is S a subspace of V?

- Is v in $\mathrm{Span}\{v_1, \ldots, v_k\}$? If so, express it as a linear combination of $v_1, \ldots, v_k$.

- Do the vectors $v_1, \ldots, v_k$ span V?

- Are $v_1, \ldots, v_k$ linearly independent? If not, find a dependence relation among them.

- Find a basis of $\mathrm{Span}\{v_1, \ldots, v_k\}$ (and in particular its dimension).

- Find the transition matrix from one basis to another, and find the coordinates of a vector in different bases.

- Describe the solution(s) of the system $Ax = b$ knowing the rank of A.

- Is $L\colon V \to W$ a linear transformation?

- Find the standard matrix representation of $L\colon \mathbb{R}^n \to \mathbb{R}^m$.

- Find bases of $\ker(L)$ and $\mathrm{im}(L)$.

- Find the matrix representation of $L\colon V \to W$ relative to bases $\{v_1, \ldots, v_n\}$ of V and $\{w_1, \ldots, w_m\}$ of W.