**Math 236** **Problem Set 6** **Spring, 2001**

## Due date: Wednesday, March 28

Contrary to the text's practice, please distinguish scrupulously between the image $\mathrm{Im}(T)$ and kernel $\ker(T)$ of a linear transformation $T\colon \mathbb{R}^n \to \mathbb{R}^m$, on the one hand, and the column space $C(A)$ and the nullspace $N(A)$ of the standard matrix $A$ of $T$, on the other hand.

1. (a) Do page 106, Exercise 6.
   (b) Do page 106, Exercise 12.
2. In each part, *also* describe the image of the transformation $T(\vec{x}) = A\vec{x}$ geometrically (as a line, plane, etc., in $\mathbb{R}^2$ or $\mathbb{R}^3$).
   (a) Do page 107, Exercise 14.
   (b) Do page 107, Exercise 16.
3. Do page 107, Exercise 24.
4. Do page 108, Exercise 38.
5. Do page 118, Exercise 6.