MATH 3500(H)
PROBLEM SET #9

DUE Wednesday, October 22, 2014.

Problems to work but not hand in:

§4.2: #1, 2c,e, 3b.

§4.3: #1, 2.

Problems to turn in:

WeBWork Homework 9

§4.1: #19 (3), 21 (2), 22 (3).

§4.2: #6 (2), 7 (3).

> **A.** (3) Suppose $\mathbf{u}$, $\mathbf{v}$, and $\mathbf{w} \in \mathbb{R}^n$ form a linearly independent set of vectors. Prove that $\{\mathbf{u} - \mathbf{v}, \mathbf{u} + \mathbf{w}, \mathbf{u} + \mathbf{v} + \mathbf{w}\}$ is linearly independent as well.

Challenge problems (Turn in separately):

§4.2: #9 (4).

> **B.** (4) (See the bottom of p. 154.) §4.2: #4. Then, suppose A is an $m \times n$ matrix with a *unique* right inverse B. Prove that $m = n$ and that A is invertible.