Math 414: Linear Algebra II, Fall 2015
Homework 3

Due: October 2, 2015 by 4:00 PM

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All problems are taken from *Linear Algebra Done Right*, 3rd Edition.

- **Exercises 3.D:** 3, 6 (you may use 3.D 4 without proof, which is similar to 3.B 24 from your previous homework), 9, 16 (The "backwards" direction is interesting, since it says the only type of operator that commutes with every other operator is scalar multiplication. To prove this direction, first prove that $ST = TS \ \forall S \in \mathcal{L}(V)$ implies that v, Tv are linearly dependent for each $v \in V$.)
- **Exercises 5.A:** 7, 16, 18, 23, 29

Instructions: You are welcome to *discuss* the homework problems with your peers in the course, but you are *never* allowed to copy each other's solutions. You must write your own solution yourself. Hand in a *clean* and *carefully written* version of each of your solutions.