MthSc 853 — Goddard — Fall09

Assignment 3

1. Axler 3.24, 3.25
2. Axler 4.4
3. Consider $L = \mathcal{L}(\mathbf{Z}_2^3, \mathbf{Z}_2^2)$, the set of all linear maps of the form $(a, b, c) \mapsto (d, e)$ where all a, b, c, d, e and all scalars are in $\mathbf{Z}_2$.
   (a) Determine the cardinality of L.
   (b) Determine the dimension of L and give a basis for L.
   (c) Determine the number of elements in L that are injective.
   (d) Determine the number of elements in L that are surjective.

   Justify your answers.

Due: Monday September 14