

IMMERSE Algebra Homework - Summer 2005
Paper Revisited 3

Reread Proposition 2.4 and Sections 3 and 4 of the paper, verifying all details. The following problems may be useful. We will discuss the paper during the last two days of class, so come prepared.

139. Verify directly that if all 2×2 minors of the matrix $D = \begin{pmatrix} a & b & c \\ d & e & f \end{pmatrix}$ are 0, then the row vectors of D are dependent.
140. Verify Re as defined in the proof of theorem 3.1 is commutative (using the definition of Re only).
141. If e is a central idempotent in a ring R with identity and $f = 1 - e$, then
- (a) f is a central idempotent.
 - (b) Re and Rf are ideals such that $R = Re \times Rf$