Homework Set 4. Due Oct 13, 2004

Q1. Show that a matrix $A$ of size $m \times n$ is of rank at least $r$ if and only if there is at least one $r \times r$ minor with non-zero determinant.

Q2. If $A$ and $B$ are $n \times n$ matrices with real entries having positive determinants, then show that there exists a continuous family $C(t) : 0 \leq t \leq 1$ of real $n \times n$ matrices with positive determinants such that $C(0) = A$ and $C(1) = B$. 