Problem Set Eight: Due Friday, December 4

Problem 1. Let M be a $k \times n$ matrix of rank k all of whose $k \times k$ minors are nonnegative. Let P be the leftward pivot column positions of M; assume that $1 \in P$ and $n \notin P$. Put $P = S \sqcup \{1\}$. Let T be any $(k-1)$-element subset of $\{2, 3, \ldots, n-1\}$ such that $\Delta^{T \cup \{1\}}(M) \neq 0$. Show that

$$\Delta^{S \cup \{n\}}(M) \Delta^{T \cup \{1\}}(M) \geq \Delta^{S \cup \{1\}}(M) \Delta^{T \cup \{n\}}(M).$$