

Let  $A$  and  $B$  be  $n \times n$  matrices. Prove that if each component of a matrix  $A$  has a factor of  $k$ , and every component of  $B$  is the corresponding element of  $A$  with a factor of  $k$  removed, then  $\det(B) = k^{-n} \det(A)$ .