1. [5pts] An operator $A : V \rightarrow V$ is normal if $AA^* = A^*A$. Show that if $A$ and $B$ are normal operators on $V$ and if $AB^* = B^*A$ then $AB$ is a normal operator.

2. [5pts] Let $A$ be a real $n \times n$ matrix, and let $p(t)$ be a polynomial with real coefficients. Is it true that $\det(p(A)) = p(\det(A))$? Either prove or give a counter-example.