Stat873 **HW03**

1. For $A' = A \in R^{n\times n}$ and $B' = B \in R^{n\times n}$ prove the following two statements

   (1) If $A \geq 0$, then $TAT' \geq 0$ for all $T \in R^{m\times n}$.
   Hint: Give the definition for $A \geq 0$ first.

   (2) If $A \geq B$, then $TAT' \geq TBT'$ for all $T \in R^{m\times n}$.
   Hint: Give the definition of $A \geq B$ first.

2. Prove the following statements

   (1) If $\widehat{\eta}$ is a LUE for η, then $A\widehat{\eta}$ is a LUE for $A\eta$.

   (2) If $\widehat{\eta}$ is a BLUE for η and B is non-singular, then $B\widehat{\eta}$ is a BLUE for $B\eta$.