Assignment 2

Matrix

1. Given two matrices $A=\begin{pmatrix} 1 & 0 & -3 \\ -2 & 5 & 0 \end{pmatrix}$ and $B=\begin{pmatrix} 2 & -1 \\ 4 & 3 \\ -5 & 6 \end{pmatrix}$. Compute AB, BA, $A+B^T$ and A^T-B.

2. Given these matrices:

   $A=\begin{pmatrix} 1 & 4 & 0 & 8 \\ 1 & 9 & 8 & 9 \end{pmatrix}$, $B=\begin{pmatrix} 1 & -1 \\ -1 & 0 \\ 0 & 1 \end{pmatrix}$, $C=\begin{pmatrix} 2 & 0 \\ 1 & 3 \end{pmatrix}$ and $D=\begin{pmatrix} 2 & 0 & -6 \\ 0 & 4 & 0 \\ -3 & 0 & -1 \\ 0 & 5 & 0 \end{pmatrix}$.

   Compute $BCA+D^T$.

3. Given two matrices $A=\begin{pmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \end{pmatrix}$ and $B=\begin{pmatrix} 1 & -1 & 1 \\ 1 & 1 & -1 \\ -1 & 1 & 1 \end{pmatrix}$. Verify the property $(AB)^T=B^TA^T$.