MATH 305
Matrix products & transposes

Problem 1 *Let* $A = \begin{bmatrix} -1 & 3 \\ 4 & 0 \end{bmatrix}$, $\mathbf{x} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$.

1. *Compute* $A\mathbf{x}$.

2. *Take the transpose of your result in part 1.*

3. *Compute* $\mathbf{x}^T A^T$ *and compare to the result of part 2.*

Problem 2 *Let* $B = \begin{bmatrix} 1 & 1 \\ -4 & 5 \end{bmatrix}$.

1. *Using* A *from Problem 1, compute* AB.

2. *Compute* BA *and compare to the result of part 1.*

3. *Take the transpose of your result in part 1.*

4. *Compute* $B^T A^T$ *and compare to the result of part 3.*