

## Matrix Arithmetic:

Let

$$A = \begin{bmatrix} 1 & 3 & 2 \\ -1 & 0 & 1 \\ 2 & -1 & 1 \\ 1 & 0 & -1 \end{bmatrix}, \quad B = \begin{bmatrix} 1 & -1 & 0 & 2 \\ 1 & 1 & -1 & 0 \\ 0 & 4 & 1 & -1 \end{bmatrix}$$

1. Find  $A + 2B^T$ .
2. Find  $AB$  and  $BA$ .
3. Find  $(AB)^T$  and  $B^T A^T$ .