

Let  $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 2 & 3 \\ 0 & 4 & -7 \end{bmatrix}$  and  $B = \begin{bmatrix} 3 & -2 & 4 \\ 7 & 12 & 8 \\ 16 & 2 & 3 \end{bmatrix}$

1. Find  $A^{-1}$  and  $B^{-1}$
2. Use your results from 1 to find  $(AB)^{-1}$  and  $(BA)^{-1}$  and verify your answers
3. Find  $(AB)^T$ ,  $A^T B^T$ , and  $B^T A^T$
4. Find  $(A^T)^{-1}$