

3. Let $A = \begin{bmatrix} 1 & 0 & -1 \\ -2 & 2 & 0 \end{bmatrix}$. Let $B = \begin{bmatrix} 4 \\ 1 \\ -2 \end{bmatrix}$. Find AB and BA , if defined.

4. If B is an $m \times n$ matrix and if $B = A^T$, find the size of

(a) A

(b) AA^T

(c) $A^T A$