

Math115 Chapter 1 Practise Questions

1. Find the inverse of $\begin{pmatrix} 2 & 1 & -2 \\ -2 & 2 & 3 \\ 0 & -2 & -1 \end{pmatrix}$ using row operations and check your answer.
2. What matrix X satisfies the equation $(2X^T - \begin{pmatrix} 1 & 2 \\ -1 & 0 \\ 1 & -4 \end{pmatrix})^T = \begin{pmatrix} -1 \\ 2 \end{pmatrix} \begin{pmatrix} 3 & 1 & 1 \end{pmatrix}$?
3. Find all solutions to $y + 3z = -2$, $3x + 2y - 2z = 1$ and $3x + 3y + z = -1$.
4. A matrix S is symmetric if $S^T = S$. Prove that $(A + A^T)$ and BB^T are always symmetric. What sizes can't A and B be?