

1. [8pts] Find the inverse of $A = \begin{bmatrix} 1 & 0 & 1 \\ -3 & 1 & -1 \\ -2 & 2 & 1 \end{bmatrix}$, if it exists.

2. [8pts] Express the vector $w = (3, -10, 8)$ as a linear combination of $u = (4, 0, -1)$ and $v = (1, 2, -2)$.