

YOU ARE BEING GRADED FOR WORK, NOT JUST THE FINAL ANSWER.

1) Let $\mathbf{B} = \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$.

a) Find $\text{rank}(\mathbf{B})$.

b) Find a basis for $\mathcal{C}(\mathbf{B})$.

c) Find $[\mathcal{C}(\mathbf{B})]^\perp = \text{nullspace of } \mathbf{B}^T$.

d) Show that $\mathbf{B}^- = \begin{bmatrix} 1 & -1 \\ 1 & 0 \end{bmatrix}$ is a generalized inverse of \mathbf{B} .