

1. Let

$$A = \begin{pmatrix} 3 & -1 & 2 \\ 4 & 2 & 2 \\ 1 & -3 & 0 \end{pmatrix}$$

Determine all the triples (y_1, y_2, y_3) for which the system $AX = Y$ has a solution. Justify your answer.