

1. Find every possible solution, \vec{x} , to the system below. [6 points]

$$\begin{pmatrix} 1 & 4 & 2 & 1 \\ 2 & 8 & 5 & 4 \\ 0 & 0 & -1 & -2 \end{pmatrix} \vec{x} = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}.$$

2. Answer the questions about $A \in \mathbb{R}^{2 \times 4}$ below. [2 points each]

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

(a) Write a basis for $C(A)$.

(b) Write a basis for $N(A)$.