

Show all work. 5 points each.

1. Write the augmented matrix that represents the system and write the general solution .

$$\begin{aligned}x_2 + 4x_3 &= -5 \\x_1 + 3x_2 + 5x_3 &= -2\end{aligned}$$

2.a) (3pts) Write a vector equation that is equivalent to the system

$$\begin{aligned}x_2 + 5x_3 &= 0 \\4x_1 + 6x_2 - x_3 &= 0 \\-x_1 + 3x_2 - 8x_3 &= 0\end{aligned}$$

b) (2pts) True or False. The set of vectors $\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$, $\begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}$, $\begin{bmatrix} 2 \\ 3 \\ 0 \end{bmatrix}$ span \mathbb{R}^3