1) Calculate the following.

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & -2 \end{bmatrix} \cdot \begin{bmatrix} -3 & -1 \\ 2 & 1 \end{bmatrix}$$

2) Suppose a system of 12 equations in echelon form has 3 free variables. How many variables are there total?

3) Solve the system of equations below.

$$\begin{aligned} x_1 + x_2 - 3x_3 &= 10 \\ x_2 \quad\quad &= 5 \\ x_3 &= 2 \end{aligned}$$