

## Additional Problems Assignment 10

1. Find all matrices  $X$  that satisfy:

(a)

$$\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix} X = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

(b)

$$\begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 2 \end{bmatrix} X = I_2$$

where

$$I_2 = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}.$$

2. Let:

$$A = \begin{bmatrix} 1 & 2 & 4 \\ -1 & 7 & 2 \end{bmatrix}, B = \begin{bmatrix} -1 & 2 & -5 & 4 \\ 2 & 1 & 2 & -2 \\ -1 & -4 & -2 & -3 \end{bmatrix} C = \begin{bmatrix} 6 & -2 \\ -2 & -12 \\ 15 & -11 \\ 2 & -2 \end{bmatrix}$$

(a) Find  $AB$

(b) Find  $BC$

(c) Show that  $A(BC) = (AB)C$