Homework 2 Math 100

1- Acknowledgment Statement: Please write the following statement as the answer to Exercise 1 and place your signature right below the statement.

"I acknowledge that it is my responsibility to carefully read the class notes before attempting the homework problems. I understand that what is in the class notes is the minimum I should know, and I should not expect to pass this course if I do not fully understand the material covered in the class notes." Rulen Contige

2- For each of the following linear systems, write the corresponding augmented matrix.

2-1)
$$\begin{cases} 2x_1 & -6x_3 = -8 \\ x_2 + 2x_3 = 3 \end{cases} \begin{bmatrix} 2 & 1 & -6 & -8 \\ 1 & 1 & 2 & 3 \end{bmatrix}$$

2-2)
$$\begin{cases} x_1 - x_2 = 2 \\ x_1 + x_2 = 5 \end{cases} \qquad \begin{bmatrix} 1 & -1 & 2 \\ 1 & 1 & 5 \end{bmatrix}$$

2-2)
$$\begin{cases} x_1 - x_2 = 2 \\ x_1 + x_2 = 5 \end{cases}$$

$$\begin{cases} x_1 + x_2 = 7 \\ 10x_1 + 9x_2 = 8 \\ -x_1 + 3x_2 = -2 \\ x_1 - x_2 = 6 \end{cases}$$

$$\begin{cases} 1 & 1 & 2 \\ 1 & 1 & 5 \\ 1 & 0 & 9 & 8 \\ -1 & 3 & -2 \\ 1 & 0 & 6 \end{cases}$$

3- For each of the following augmented matrices, write the corresponding linear system. Use the symbols x_1, x_2, \cdots for the un-

knowns.
3-1)
$$\begin{bmatrix} 1 & 5 & 2 & -1 \\ 0 & 2 & -4 & 8 \\ 0 & 0 & 2 & 0 \end{bmatrix}$$
 $\begin{bmatrix} 1x_1 + 5x_2 + 2x_3 = -1 \\ 0x_1 + 2x_2 - 4x_3 = 8 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 8 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 8 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$ $\begin{bmatrix} 1x_1 + 2x_2 + 4x_3 = 5 \\ 0x_1 + 2x_2 - 4x_3 = 6 \end{bmatrix}$

$$2x_1 + 4x_2 + 5x_3 = 4$$

$$4x_1 + 5x_2 + 4x_3 = 2$$

$$\begin{bmatrix} 0 & 0 & 2 & 0 \end{bmatrix} & O_{X_1} + Z_{X_2} - I_{X_3} = 8$$

$$\begin{bmatrix} 1 & x_2 & x_3 & x_3 \\ 4 & 5 & 4 & 2 \end{bmatrix} & O_{X_1} + O_{X_2} + Z_{X_3} = 0$$

$$\begin{bmatrix} 1 & 0 & -9 & 0 & 4 \\ 0 & 1 & 3 & 0 & -1 \\ 0 & 0 & 0 & 2 & 4 \end{bmatrix} & O_{X_1} + O_{X_2} + Q_{X_3} + Q_{X_4} = 1$$

$$O_{X_1} + I_{X_2} + I_{X_3} + O_{X_4} = 1$$

$$O_{X_1} + I_{X_2} + I_{X_3} + O_{X_4} = 1$$

$$O_{X_1} + I_{X_2} + I_{X_3} + O_{X_4} = 1$$

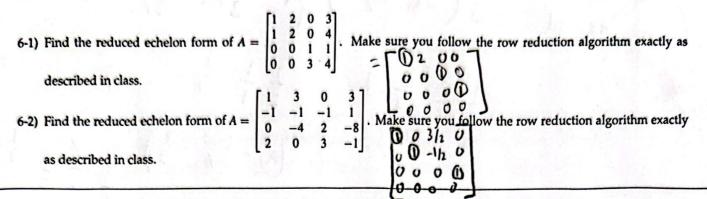
$$O_{X_1} + O_{X_2} + I_{X_3} + O_{X_4} = 1$$

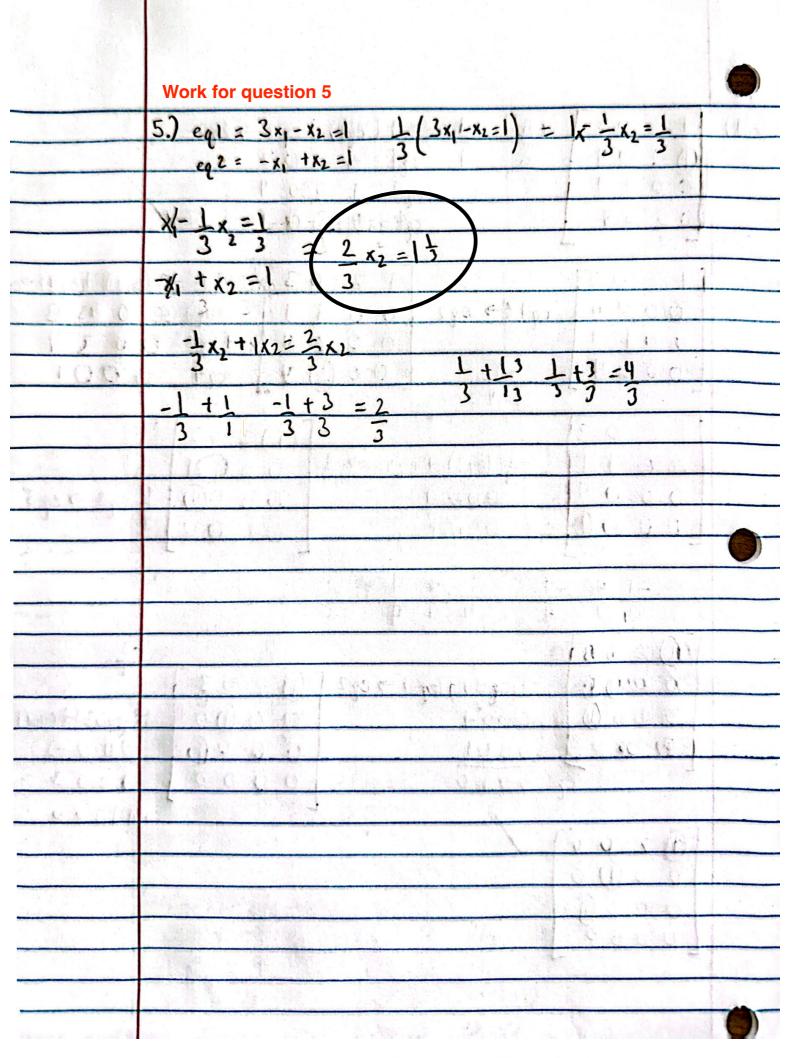
$$O_{X_1} + I_{X_2} + I_{X_3} + O_{X_4} = 1$$

$$O_{X_1} + I_{X_2} + I_{X_3} + O_{X_4} = 1$$

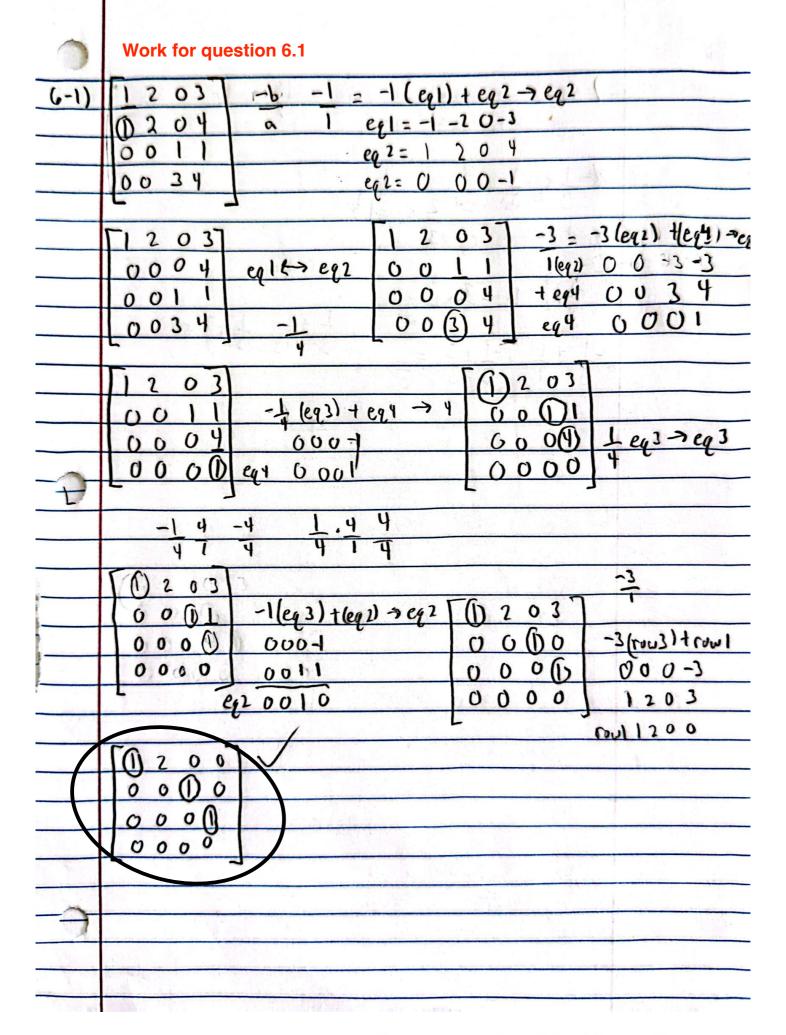
- Ox + 0x2 + 0x3 + 0x4 = 3
- 4- Mark each statement True or False. Justify each answer.
 - 4-1) The matrix $A = \begin{bmatrix} 0 & 0 & 2 & 3 & 2 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 4 & 3 \end{bmatrix}$ is in echelon form. No Not all Non 200 news are above 200 rows
 - 4-2) The matrix A = \[\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix} \] is in reduced echelon form. Let it Setifies rule 1 \(\frac{1}{2} \) to be echelon \(\frac{3}{2} \) The matrix A = \[\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix} \) is in reduced echelon form. Let it Setifies rule 1 \(\frac{1}{2} \) to be echelon \(\frac{3}{2} \) The matrix A = \[\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix} \] is in reduced echelon form. Let it Setifies rule 1 \(\frac{1}{2} \) 2 to be echelon \(\frac{3}{2} \) The matrix A = \[\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix} \] is in reduced echelon form. Let it Setifies rule 1 \(\frac{1}{2} \) 2 to be echelon \(\frac{3}{2} \) The matrix A = \[\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix} \] is in reduced echelon form. Let it Setifies rule 1 \(\frac{1}{2} \) 2 to be echelon \(\frac{3}{2} \) The matrix A = \[\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix} \] is in reduced echelon form.
- 5- Consider the linear system $\begin{cases} 3x_1 x_2 = 1 \\ -x_1 + x_2 = 1 \end{cases}$. Suppose we apply the following legitimate operation to the above system:

6- Please carefully review the examples solved in Part 2 of HW2 (the reading assignment) before attempting the remaining problems here. 1)id that

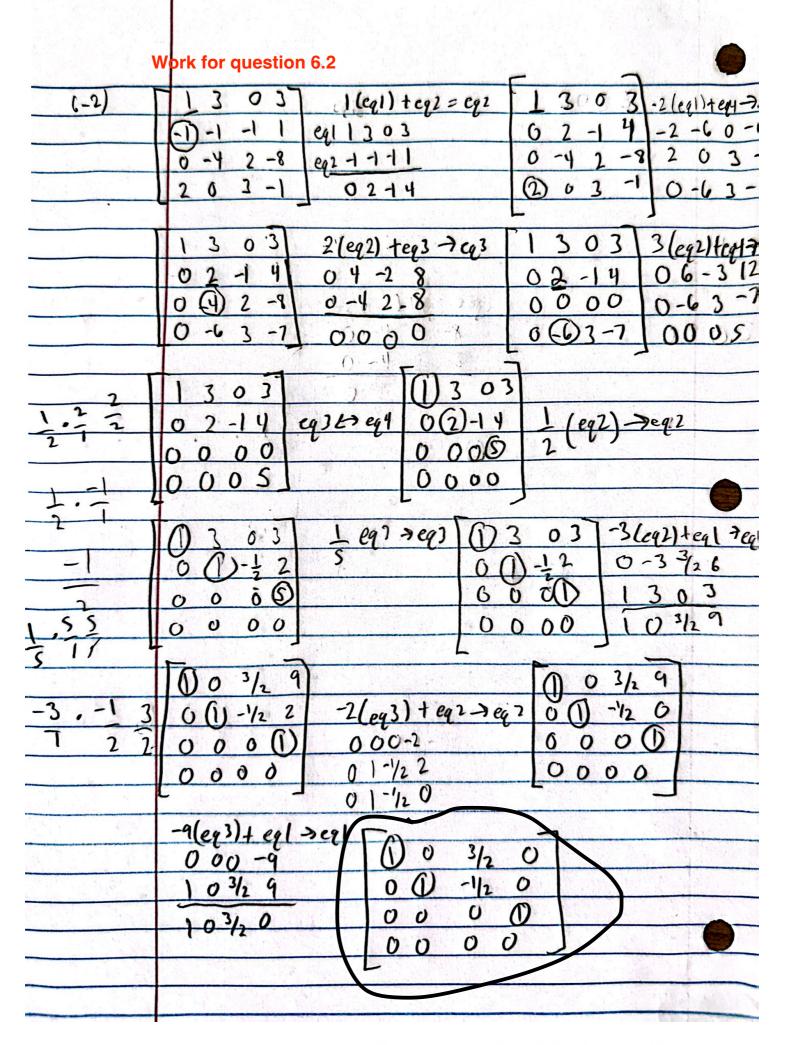




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