

Name: _____

MATH 108

Spring 2024

HW 17: Due 04/15

*“Why would you sow secretly? Why would you
prune privately? Why would you cull
clandestinely? Hidden hoe-ing and whatnot?”*

— Barbara Howard, Abbott Elementary

Problem 1. (10pts) Find the augmented matrix to the corresponding system of equations:

$$x + y + z - w = 15$$

$$2x - 3y + 14w = -12$$

$$-x + 5y + 8z = 27$$

$$x - y + z - w = 8$$

Problem 2. (10pts) The matrix below is the initial augmented matrix for a system of linear equations. Find the system of linear equations.

$$\left(\begin{array}{ccc|c} -4 & 1 & 12 & \\ 3 & 7 & -11 & \end{array} \right)$$

Problem 3. (10pts) The following matrix is the RREF of an augmented matrix coming from a system of equations. Did this system of equations have a solution? If the system of equations had a solution, find all the possible solutions. If the system did not have a solution, explain why.

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & -5 \\ 0 & 0 & 1 & 12 \end{pmatrix}$$

Problem 4. (10pts) The following matrix is the RREF of an augmented matrix coming from a system of equations. Did this system of equations have a solution? If the system of equations had a solution, find all the possible solutions. If the system did not have a solution, explain why.

$$\begin{pmatrix} 1 & 0 & 0 & 0 & 6 \\ 0 & 1 & 0 & 0 & -7 \\ 0 & 0 & 1 & 0 & 2 \\ 0 & 0 & 0 & 0 & -1 \end{pmatrix}$$