Name: _____ Date: _____
PCH Ms. Loughran

1. The matrix $A=\begin{bmatrix}-4 & -5 & -1\\ -2 & -5 & -2\\ -2 & 5 & 2\end{bmatrix}$ corresponds to the coefficient matrix for the system of equations:

$$-4x-5y-z=18$$
$$-2x-5y-2z=12$$
$$-2x+5y+2z=4$$

$A^{-1}=\begin{bmatrix}0 & -\frac{1}{4} & -\frac{1}{4}\\ -\frac{2}{5} & \frac{1}{2} & \frac{3}{10}\\ 1 & -\frac{3}{2} & -\frac{1}{2}\end{bmatrix}$ Use this fact to solve the system of equations using matrices.

X $\begin{bmatrix}x\\ y\\ z\end{bmatrix}$ B $\begin{bmatrix}18\\ 12\\ 4\end{bmatrix}$

Plan: $X = A^{-1} \cdot B$

0 -3 -1

$-\frac{36}{5} + 6 + \frac{12}{10}$

$-\frac{72}{10}$

$-\frac{60}{10} + 6$

18 -18 -2

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

$x=-4$
$y=0$
$z=-2$

Work on solving the word problems stationed around the room using matrices.