(Q4)
Assuming homogeneity and applying row reduction, we see the following steps:

$$\left(\begin{array}{ccc|c} 1 & 2 & 5 & 0 \\ -1 & 0 & 5 & 0 \\ 0 & 1 & 5 & 0 \\ 1 & 2 & 5 & 0 \end{array}\right)$$
$$\downarrow$$
$$\left(\begin{array}{ccc|c} 1 & 2 & 5 & 0 \\ 0 & 2 & 10 & 0 \\ 0 & 1 & 5 & 0 \\ 1 & 2 & 5 & 0 \end{array}\right)$$
$$\downarrow$$
$$\left(\begin{array}{ccc|c} 1 & 2 & 5 & 0 \\ 1 & 2 & 5 & 0 \\ 0 & 2 & 10 & 0 \\ 0 & 1 & 5 & 0 \end{array}\right)$$
$$\downarrow$$
$$\left(\begin{array}{ccc|c} 1 & 2 & 5 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 2 & 10 & 0 \\ 0 & 1 & 5 & 0 \end{array}\right)$$
$$\downarrow$$
$$\left(\begin{array}{ccc|c} 1 & 2 & -5 & 0 \\ 0 & 1 & 5 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{array}\right)$$

The final set of equations forms a set that is not linearly independent.