QUIZ 1 VERSION A AND B

JIASU WANG

1. Solve the following systems of linear equations.

(1)
$$\begin{cases} x + y + 2z = 7 \\ -2x + 6y - 4z = 2 \\ -3x + 5y - 3z = 1 \end{cases}$$

sol: x= 1, y = 2, z = 2

(2)
$$\begin{cases} x + y + 2z = -6 \\ -2x + 6y - 4z = 4 \\ -3x + 5y - 3z = 4 \end{cases}$$

sol: x= -1, y = -1, z = -2

(3)
$$\begin{cases} x_1 - 7x_2 + 4x_3 = 8 \\ -2x_1 + 6x_2 = 0 \end{cases}$$

sol: $\{(x_1, x_2, x_3) = (3s - 6, s - 2, s) : s \in \mathbb{R}\}$

(4)
$$\begin{cases} x_1 - 6x_2 + 4x_3 = 8 \\ -2x_1 + 4x_2 = 0 \end{cases}$$

sol: $\{(x_1, x_2, x_3) = (2s - 4, s - 2, s) : s \in \mathbb{R}\}$

2. Determine the value(s) of h such that the following is the augmented matrix of a consistent linear system:

$$\left[\begin{array}{cc|c} k & 1 & -3 \\ 9 & k & 6 \end{array} \right]$$

sol: $k \neq -3, 3$

$$\left[\begin{array}{cc|c} k & 1 & -4 \\ 16 & k & 1 \end{array} \right]$$

sol: $k \neq -4, 4$

3. Find an equation involving g, h that makes this augmented matrix corresponding to a consistent system:

$$\left[\begin{array}{ccc|c} 1 & -4 & 7 & g \\ 0 & 3 & -5 & h \\ -2 & 5 & -9 & 0 \end{array} \right]$$

sol: 2g+h =0

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$$\left[\begin{array}{ccc|c} 1 & -4 & 7 & g \\ 0 & 3 & -5 & 0 \\ -2 & 5 & -9 & h \end{array} \right]$$

sol: 2g+h =0