

MATH 1090 - SUMMER 2007 - ASSIGNMENT #11

SYSTEMS OF LINEAR EQUATIONS - CONTINUED

- (1) For each of the following reduced matrices write the corresponding parametric solution:

$$A = \left( \begin{array}{cc|c} 1 & -1 & 2 \\ 0 & 0 & 0 \end{array} \right) \quad B = \left( \begin{array}{ccc|c} 1 & 1 & 0 & 2 \\ 0 & 0 & 1 & -3 \\ 0 & 0 & 0 & \end{array} \right)$$

$$C = \left( \begin{array}{ccc|c} 1 & 0 & 2 & 3 \\ 0 & 1 & -1 & 0 \end{array} \right) \quad D = \left( \begin{array}{ccc|c} 1 & 0 & 3 & 1 \\ 0 & 1 & 4 & 2 \\ 0 & 0 & 0 & 0 \end{array} \right)$$

$$E = \left( \begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 4 \end{array} \right) \quad F = \left( \begin{array}{ccc|c} 1 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{array} \right)$$

$$G = \left( \begin{array}{ccc|c} 1 & -1 & 2 & 1 \\ 0 & 0 & 0 & 0 \end{array} \right) \quad H = \left( \begin{array}{ccc|c} 0 & 1 & 3 & 1 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 \end{array} \right)$$

$$I = \left( \begin{array}{cccc|c} 1 & 0 & 1 & 5 & 1 \\ 0 & 1 & 0 & 3 & 1 \end{array} \right) \quad J = \left( \begin{array}{cccc|c} 1 & 3 & 0 & 2 & 1 \\ 0 & 0 & 1 & 1 & -1 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right)$$

(2) Solve the following systems of linear equations using matrix reduction. If there's no solution, write: no solution. If there's an infinite family of solution, write down the parametric solution. Show all your work.

$$A \begin{cases} x + 3z & = 4 \\ 2x + y & = -8 \\ 4x + 3y + 3z & = -5 \end{cases} \quad B \begin{cases} 6x + 2y + 18z & = 20 \\ 4x + 2y + 14z & = 14 \\ -x + 3y + 7z & = 0 \end{cases}$$

$$C \begin{cases} 2x + 3y + 4z & = 2 \\ x + 3y + 5z & = 11 \end{cases} \quad D \begin{cases} x + 5y + 2z & = 1 \\ -x - 2y + 7z & = 17 \\ 2x + 8y - 2z & = 6 \end{cases}$$

$$E \begin{cases} x + y + 4z & = 1 \\ 2x - y - z & = 2 \\ -2x + 2y + z & = 1 \end{cases} \quad F \begin{cases} 2x + 7y + 5z & = 3 \\ -2x - 3y - z & = 9 \\ 4x + 9y + 5z & = 6 \end{cases}$$

$$G \begin{cases} x - y + z & = 0 \\ -2x + 2z & = 12 \\ 3x + 2y + z & = 2 \end{cases} \quad H \begin{cases} 2x + 2y + 3z + 10w & = 13 \\ x + y + 3z + 11w & = 11 \end{cases}$$

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