Math 2418 Linear Algebra Quiz #3

1.) Determine if the system of equations corresponding to the augmented matrices below has no solution, exactly one solution, or an infinite number of solutions. If it has an infinite number of solutions, state the number of free variables.

1a.) $\begin{bmatrix} 0 & 6 & 3 & 7 & 2 \\ 0 & 0 & 5 & 2 & 8 \\ 0 & 0 & 0 & 0 & 4 \end{bmatrix}$ Answer 1a: no solution

1b.) $\begin{bmatrix} 0 & 6 & 3 & 7 & 2 \\ 0 & 0 & 5 & 2 & 8 \\ 0 & 0 & 0 & 1 & 4 \end{bmatrix}$ Answer 1b: infinite number of solutions, 1 free variable

1c.) $\begin{bmatrix} 0 & 6 & 3 & 7 & 2 \\ 0 & 0 & 5 & 2 & 8 \\ 0 & 0 & 0 & 1 & 4 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ Answer 1c: infinite number of solutions, 1 free variable

1d.) $\begin{bmatrix} 3 & 6 & 3 & 7 & 2 \\ 0 & 9 & 5 & 2 & 8 \\ 0 & 0 & 7 & 1 & 4 \\ 0 & 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ Answer 1d: exactly one solution

2.) Circle the most correct answer.

2a.) A system of linear equations with more variables than equations can have

vi.) no solution or an infinite number of solutions.

2b.) A homogeneous system of linear equations with more variables than equations can have

iii.) infinite number of solutions

3.) Circle T for True or F for False.

3a.) A system of linear equations can have exactly 3 solutions F

3b.) If $AB = AC$, then $B = C$ F

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