

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Consider the system of linear equations whose augmented matrix is

$$\left[\begin{array}{cccc|c} 1 & -7 & 0 & 6 & 5 \\ 0 & 0 & 1 & -2 & -3 \\ -1 & 7 & -4 & 2 & 7 \end{array} \right].$$

- (a) Row reduce the matrix in **reduced** echelon form.

- (b) Circle in the final matrix of Part (a) the pivot entries and list below the following:

(i) The pivot columns are:

(ii) The basic variables are:

(iii) The free variables are:

- (c) Give a formal parametric description of the solutions of the linear system using the free variables as parameters:

$$(x_1, x_2, x_3, x_4) =$$

2. Consider the system of linear equations whose augmented matrix is

$$\left[\begin{array}{cc|c} 1 & c & -5 \\ 5 & 4 & -10 \end{array} \right].$$

(a) Find the value(s) of the constant c for which the system of equations is inconsistent.

(b) If the system is consistent, provide its solution(s) explicitly.