Responses for the Reading Questions 4

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Types of Solution Sets

1 How can we easily recognize when a system of linear equations is inconsistent or not?

According to the definition of RCLS, we can recognize by looking at (n+1) is a pivot column or not.

2 Suppose we have converted the augmented matrix of a system of equations into reduced row-echelon form. How do we then identify the dependent and independent (free) variables?

Pivot columns are dependent variables, while independent variables are not.

3 What are the possible solution sets for a system of linear equations?

There are three solutions: no solution, a unique solution and infinitely many solutions. The number of solutions depends on the value,

$$n - r > 0$$

where n is a number of variables and nonzero rows r.