

Rank and Consistency and Inconsistency :

1) $A = \begin{bmatrix} 4 & 2 & 1 & 3 \\ 6 & 3 & 4 & 7 \\ 2 & 1 & 0 & 1 \end{bmatrix}$, Find rank?

2) Given; $x + 2y + z = 6$, the system has?
 $2x + y + 2z = 6$
 $x + y + z = 5$

- (a) Unique solution
- (b) infinite no. of solⁿ
- (c) No solution
- (d) Exactly two solⁿ

3) How many solutions does the following system of equations have?

$$-x + 5y = -1, \quad x - y = 2, \quad x + 3y = 3$$

- (a) infinitely many
- (b) Unique
- (c) No solution?

4) Consider \rightarrow

$$\begin{aligned} 2x_1 - x_2 + 3x_3 &= 1 \\ 3x_1 - 2x_2 + 5x_3 &= 2 \\ -x_1 - 4x_2 + x_3 &= 3 \end{aligned}$$

The system of eqⁿ. has;

- (a) No solution
- (b) Unique
- (c) Infinitely many

5) For what value of "a", if any, will the following system of equations in x, y and z have a solution?

$$2x + 3y = 4, \quad x + y + z = 4, \quad x + 2y - z = a?$$

[Hint \rightarrow have a solution means system is consistent i.e. $\text{Rank}(A) = \text{Rank}(AB)$]