

Related Questions with Solutions

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Questions

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**Question: 01**

Consider the system of linear equations

$$x_1 + 2x_2 + x_3 = 3$$

$$2x_1 + 3x_2 + x_3 = 3$$

$$3x_1 + 5x_2 + 2x_3 = 1$$

The system has

- A. infinite number of solutions
- B. exactly 3 solutions
- C. a unique solution
- D. no solution

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Solutions

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**Solution: 01**

Given system of equations is

$$x_1 + 2x_2 + x_3 = 3$$

$$2x_1 + 3x_2 + x_3 = 3$$

$$3x_1 + 5x_2 + 2x_3 = 1$$

It can be observed that the sum of first two equations yields

$$(x_1 + 2x_2 + x_3) + (2x_1 + 3x_2 + x_3) = 3 + 3$$

$$\Rightarrow 3x_1 + 5x_2 + 2x_3 = 6$$

But this contradicts the third equation, *i.e.*,

$$3x_1 + 5x_2 + 2x_3 = 1$$

So, the system is inconsistent and hence it has no solution.

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Correct Options

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**Answer:01**

**Correct Options: D**