

# Mathematics

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(Chapter – 3) (Pair of Linear Equations in Two Variables)(Exemplar Problems)  
(Class – X)

## Exercise 3.1

Choose the correct answer from the given four options:

### Question 10:

A pair of linear equations which has a unique solution  $x = 2, y = -3$  is

(A)  $x + y = -1$

$2x - 3y = -5$

(B)  $2x + 5y = -11$

$4x + 10y = -22$

(C)  $2x - y = 1$

$3x + 2y = 0$

(D)  $x - 4y - 14 = 0$

$5x - y - 13 = 0$

### Answer 10:

(D)  $x - 4y - 14 = 0$

$5x - y - 13 = 0$

### Solution:

For case (A), given equations  $x + y = -1$  and  $2x - 3y = -5$ .

Putting  $x = 2, y = -3$  in LHS of equation  $x + y = -1$ , we get

$2 - 3 = -1 = \text{RHS}$

Putting  $x = 2, y = -3$  in LHS of equation  $2x - 3y = -5$ , we get

$2 \times 2 - 3 \times (-3) = 4 + 9 = 13 \neq -5 \neq \text{RHS}$

Since  $x = 2, y = -3$  is satisfying only one of the two equations.

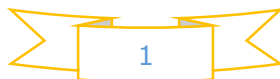
So, option (A) is false.

Now, for case (B), given equations  $2x + 5y = -11$  and  $4x + 10y = -22$ .

Putting  $x = 2, y = -3$  in LHS of equation  $2x + 5y = -11$ , we get

$2 \times 2 + 5 \times (-3) = 4 - 15 = -11 = \text{RHS}$

Putting  $x = 2, y = -3$  in LHS of equation  $4x + 10y = -22$ , we get



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$$4 \times 2 + 10 \times (-3) = 8 - 30 = -12 \neq -22 \neq \text{RHS}$$

Since  $x = 2$ ,  $y = -3$  is satisfying only one of the two equations.

So, option (B) is false.

Now, for case (C), given equations  $2x - y = 1$  and  $3x + 2y = 0$ .

Putting  $x = 2$ ,  $y = -3$  in LHS of equation  $2x - y = 1$ , we get

$$2 \times 2 - (-3) = 4 + 3 = 7 \neq 1 \neq \text{RHS}$$

Putting  $x = 2$ ,  $y = -3$  in LHS of equation  $3x + 2y = 0$ , we get

$$3 \times 2 + 2 \times (-3) = 6 - 6 = 0 = \text{RHS}$$

Since  $x = 2$ ,  $y = -3$  is satisfying only one of the two equations.

So, option (C) is false.

Now, for case (D), given equations  $x - 4y - 14 = 0$  and  $5x - y - 13 = 0$ .

Putting  $x = 2$ ,  $y = -3$  in LHS of equation  $x - 4y - 14 = 0$ , we get

$$2 - 4 \times (-3) - 14 = 2 + 12 - 14 = 0 = \text{RHS}$$

Putting  $x = 2$ ,  $y = -3$  in LHS of equation  $5x - y - 13 = 0$ , we get

$$5 \times 2 - (-3) - 13 = 10 + 3 - 13 = 0 = \text{RHS}$$

Since  $x = 2$ ,  $y = -3$  is satisfying both the equations.

So, option (D) is true.

Hence, the option (D) is correct.

