Linear Equations in Two Variables

Assertion & Reason Type Questions

Directions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option:

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

b. Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

c. Assertion (A) is true but Reason (R) is false.

d. Assertion (A) is false but Reason (R) is true.

Q1. Assertion (A): If x = -1 and y = 2 is a solution of the equation 3x + 2y = k, then the value of k is 1.

Reason (R): The solution of the line will satisfy the equation of the line.

Answer : (a) Assertion (A): Given equation is 3x + 2y = k.

Since, x = -1 and y = 2 is a solution of 3x + 2y = k.

Therefore 3(-1) + 2(2) = k $\Rightarrow$ -3 + 4 = k $\Rightarrow$ k = 1

So, Assertion (A) is true.

Reason (R): It is also true.

Hence, both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Q2. Assertion (A): The linear equation 2x + 3y = 5 has a unique solution.

Reason (R): A linear equation in two variables has infinitely many solutions.

Answer : (d) Assertion (A): A linear equation 2x + 3y = 5 has not a unique solution.

So, Assertion (A) is false.

Reason (R): It is true to say that the linear equation in two variables has infinitely many solutions.

Hence, Assertion (A) is false but Reason (R) is true.

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Q3. Assertion (A): The point (2, 1) satisfy the linear equation 3x + 4y = 10.

Reason (R): Any point satisfy the linear equation means when we put the coordinate values in the given equation, then LHS = RHS.

Answer : (a) Assertion (A): Since, Point (2, 1) satisfy the linear equation 3x + 4y = 10.

Put x = 2 and y = 1 in the left hand side of the given equation.

∴ LHS = 3(2) + 4(1) = 6 + 4 = 10 = RHS

So, Assertion (A) is true.

Reason (R): It is also true.

Hence, both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Q4. Assertion (A): y = 3 is a line, which is 3 units distance from X-axis.

Reason (R): X = h is a line, which is h unit distance from Y-axis.

Answer : (b) Assertion (A): It is true that, y = 3 is a line, which is 3 units distance from X-axis in the positive direction of Y-axis.

Reason (R): It is true that X = h is a line, which is h unit distance from Y-axis.

Hence, both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

Q5. Assertion (A): The linear equation 3x - 2y = 4 passes through the point (3, 4).

Reason (R): Every point lying on the line is a solution of the equation 3x - 2y = 4.

Answer : (d) Assertion (A): Put x = 3 and y = 4 in the left hand side of the given equation.

∴ LHS = 3(3) - 2(4) = 9 – 8 = 1 ≠ RHS

So, Assertion (A) is false.

Reason (R): It is true to say that every point lying on the line is a solution of the equation 3x - 2y = 4.

Hence, Assertion (A) is false but Reason (R) is true.

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