PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

MCQs & A and R WORK SHEET

Test / Exam Name: Pair Of Linear Equations In Two Variables **Standard: 10th** **Subject: Mathematics**

Student Name: ..... **Section:** ..... **Roll No.:** .....

Questions: 45 **Time: 01:30 hh:mm** **Negative Marks: 0** **Marks: 45**

Instructions

1. MULTIPLE CHOICE QUESTIONS.

Q1. For what value of k do the equations kx - 2y = 3 and 3x + y = 5 represent two lines intersecting at a unique point? **1 Mark**

A k = 3 **B** k = -3 **C** k = 6 **D** All real values except -6

Q2. A system of two linear equations in two variables has a unique solution if their graphs: **1 Mark**

A Coincide **B** Cut the x-axis **C** Do not intersect at any point
D Intersect only at a point

Q3. A system of two linear equations in two variables have no solution if their graphs: **1 Mark**

A Cut the x-axis **B** Intersect only at a point **C** Coincide
D Do not intersect at any point

Q4. Every linear equation in two variables has: **1 Mark**

A Two solutions **B** One solution **C** An infinite number of solutions
D No solution

Q5. A system of two linear equations in two variables is dependent consistent, if their graphs: **1 Mark**

A Do not intersect at any point **B** Coincide with each other **C** Cut the x-axis
D Intersect only at a point

Q6. The area of the triangle formed by the line $\frac{x}{a} + \frac{y}{b} = 1$ with the co-ordinate axis is: **1 Mark**

A 2ab sq. units **B** ab sq. units **C** $\frac{1}{4}$ab sq. units **D** $\frac{1}{2}$ab sq. units

Q7. For what value of k, do the equations kx - 2y = 3 and 3x + y = 5 represent two lines intersecting at a unique point? **1 Mark**

A k = 3 **B** all real values except -6 **C** k = 6 **D** k = -3

Q8. The graphs of the equations 2x + 3y - 2 = 0 and x - 2y - 8 = 0 are two lines which are: **1 Mark**

A Coincident. **B** Parallel. **C** Intersecting exactly at one point.
D Perpendicular to each other.

Q9. The pair of equations x = a and y = b graphically represents lines which are: **1 Mark**

A Parallel **B** Intersecting at (b, a) **C** Coincident **D** Intersecting at (a, b)

Q10. If the system 6x - 2y = 3, kx - y = 2 has a unique solution, then: **1 Mark**

A $k \neq 4$ **B** k = 4 **C** $k \neq 3$ **D** k = 3

Q11. Choose the correct answer from the given four options: **1 Mark**

For what value of k, do the equations 3x - y + 8 = 0 and 6x - ky = -16 represent coincident lines?

A $\frac{1}{2}$ **B** $-\frac{1}{2}$ **C** 2 **D** -2

Q12. The pair of equations x + 2y + 5 = 0 and -3x - 6y + 1 = 0 have: **1 Mark**

A A unique solution **B** Exactly two solutions **C** Infinitely many solutions **D** No solution

Q13. Choose the correct answer from the given four options: **1 Mark**

The value of c for which the pair of equations cx - y = 2 and 6x - 2y = 3 will have infinitely many solutions is:

A 3. **B** -3. **C** -12. **D** No value.

Q14. The lines representing the pair of equations 5x - 4y + 8 = 0 and 7x + 6y - 9 = 0: **1 Mark**

A None of these **B** Intersect at a point **C** Are parallel **D** Are coincident

Q15. If a pair of linear equations in two variables is consistent, then the lines represented by two equations are: **1 Mark**

A Always coincident **B** Intersecting or coincident **C** Intersecting **D** Parallel

Q16. One equation of a pair of inconsistent linear equations is 2x - 3y = 4, then the second equation can be: **1 Mark**

A 3x - 2y = 4 **B** 6x - 9y = 12 **C** 4x - 6y = 8 **D** 4x - 6y = 9

Q17. The sum of two numbers is 35 and their difference is 13. The numbers are: **1 Mark**

A 24 and 11 **B** 25 and 12 **C** 20 and 15 **D** 26 and 13

Q18. The lines representing the pair of equations $x + 3y = 6$ and $2x - 3y = 12$ intersect at: **1 Mark**

A (0, 6) **B** (1, 6) **C** (6, 0) **D** (6, 1)

Q19. The pair of linear equations $y = 0$ and $y = -6$ has. **1 Mark**

A A unique solution **B** No solution **C** Infinitely many solutions **D** Only solution (0, 0)

Q20. The pair of equations $x = 2$ and $y = -3$ has: **1 Mark**

A Infinitely many solutions **B** Two solutions **C** One solution **D** No solution

Q21. 5 pencils and 7 pens together cost Rs. 50 whereas 7 pencils ands pens together cost Rs. 46. The cost of 1 pen is: **1 Mark**

A Rs. 5 **B** Rs. 6 **C** Rs. 3 **D** Rs. 4

Q22. The larger of the two supplementary angles exceeds the smaller by 18°. The smaller angle is: **1 Mark**

A 180° **B** 81° **C** 100° **D** 99°

Q23. The angles of a triangle are x°, y° and 40°. The difference between the two angles x and y is 30°, then: **1 Mark**

A x° = 65° and y° = 95° **B** x° = 75° and y° = 45° **C** None of these **D** x° = 85° and y° = 55°

Q24. If $\frac{1}{x} + \frac{2}{y} = 4$ and $\frac{3}{y} + \frac{1}{x} = 11$ then: **1 Mark**

A $x = 2,\ y = 3$ **B** $x = -2,\ y = 3$ **C** $x = \frac{-1}{2},\ y = 3$ **D** $x = \frac{-1}{2},\ y = \frac{1}{3}$

Q25. 5 years hence, the age of a man shall be 3 times the age of his son while 5 years earlier the age of the man was 7 times the age of his son. The present age of the man is: **1 Mark**

A 45 years **B** 47 years **C** 40 years **D** 50 years

Q26. If $\frac{3}{x+y} + \frac{2}{x-y} = 2$ and $\frac{9}{x+y} - \frac{4}{x-y} = 1$ then: **1 Mark**

A $x = \frac{1}{2},\ y = \frac{3}{2}$ **B** $x = \frac{5}{2},\ y = \frac{1}{2}$ **C** $x = \frac{3}{2},\ y = \frac{1}{2}$ **D** $x = \frac{1}{2},\ y = \frac{5}{2}$

Q27. If $2^{x+y} = 2^{x-y} = \sqrt{8}$ then the value of y is: **1 Mark**

A $\frac{1}{2}$ **B** 0 **C** $\frac{3}{2}$ **D** None of these

Q28. The area of the triangle formed by the lines $2x + y = 6$, $2x - y + 2 = 0$ and the x-axis is: **1 Mark**

A 15sq. units **B** 8sq. units **C** 12sq. units **D** 10sq. units

Q29. In a $\triangle ABC$, $\angle C = 3\angle B = 2(\angle A + \angle B)$, then $\angle B = ?$ **1 Mark**

A 20º **B** 40º **C** 60º **D** 80º

Q30. 92 Aruna has only Rs. 1 and Rs. 2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is Rs. 75, then the number of Rs. 1 and Rs. 2 coins are, respectively: **1 Mark**

A 35 and 15 **B** 35 and 20 **C** 15 and 35 **D** 25 and 25

Q31. If $4x + 6y = 3xy$ and $8x + 9y = 5xy$ then: **1 Mark**

A $x = 2, y = 3$ **B** $x = 1, y = 2$ **C** $x = 3, y = 4$ **D** $x = 1, y = -1$

Q32. Half the perimeter of a rectangular garden, whose length is 4m more than its width is 36m. The area of the garden is: **1 Mark**

A $320m^2$ **B** $400m^2$ **C** $360m^2$ **D** $300m^2$

Q33. The difference between two numbers is 26 and one number is three times the other. The numbers are: **1 Mark**

A 36 and 10 **B** 36 and 12 **C** 30 and 10 **D** 39 and 13

ASSERTION AND REASON QUESTIONS

Q34. Directions: In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following: **1 Mark**

Assertion: If a pair of linear equations is consistent, then the lines are intersecting or coincident

Reason: Because the two lines definitely have a solution.

A both assertion and reason are correct and reason is correct explanation for assertion

B both assertion and reason are correct but reason is correct explanation for assertion

C assertion is correct but reason is false **D** both assertion and reason are false

Q35. Assertion: The slope of the line $2x - y = 0$ is 2 **1 Mark**

Reason: The slope of the line which lies in first and third quadrant is positive

A

both assertion and reason are correct and reason is correct explanation for assertion

B both assertion and reason are correct but reason is correct explanation for assertion

C assertion is correct but reason is false

D both assertion and reason are false

Q36.Assertion: (A) $4x + 3y = 18$ is a line which is parallel to X - axis. **1 Mark**

Reason: (R) The graph of linear equation $ax = b$, where $a \neq 0$ is parallel to Y - axis.

A Ais true, Ris true; Ris acorrect explanation forA.

B Ais true, Ris true; Ris not a correct explanation for A.

C Ais true; Ris False.

D Ais false; R is true.

Q37.Assertion: (A) $x + y - 4 = 0$ and $2x + ky - 3 = 0$ has no solution if $k = 2$. **1 Mark**

Reason: (R) $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are consistent, if $\frac{a_1}{a_2} \neq \frac{k_1}{k_2}$.

A Ais true, Ris true; Ris acorrect explanation forA.

B Ais true, Ris true; Ris not a correct explanation for A.

C Ais true; Ris False.

D Ais false; R is true.

Q38.Assertion: $3x - 4y = 7$ and $6x - 8y = k$ have infinite number of solution if $k = 14$. **1 Mark**

Reason: $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ have a unique solution if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

A Both assertion (A) and reason (R) are true and reason (R) isthe 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

Q39.Assertion: lines are $x + 2y - 4 = 0$ and $2x + 4y - 12 = 0$ the graphical representation of line is parallel line. **1 Mark**

Reason: if pair of given lines are parallel then $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

A both assertion and reason are correct and reason is correct explanation for assertion

B both assertion and reason are correct but reason is correct explanation for assertion

C assertion is correct but reason is false

D both assertion and reason are false

Q40.Assertion: The value of k for which the system of linear equations $kx - y = 2$ and $6x - 2y = 3$ has a unique solution is 3. **1 Mark**

Reason: The system of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ has a unique solution if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

A Both assertion (A) and reason (R) are true and reason (R) isthe 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

Q41.Assertion: The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ have unique solution **1 Mark**

Reason: an equations $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ Hence, the given pair of equations have no solution

A both assertion and reason are correct and reason is correct explanation for assertion

B both assertion and reason are correct but reason is correct explanation for assertion

C assertion is correct but reason is false

D both assertion and reason are false

Q42.Assertion: $3x + 4y + 5 = 0$ and $6x + ky + 9 = 0$ represent parallel lines if $k = 8$. **1 Mark**

Reason: $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ represent parallel lines ines if $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

A Both assertion (A) and reason (R) are true and reason (R) isthe 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

Q43.Assertion: Assertion : The graph of the linear equation $x - 5y = 1$ passes through the point (6, 1). **1 Mark**

Reason: Every point lying on graph is not a solution of $x - 5y = 1$.

A both assertion and reason are correct and reason is correct explanation for assertion

B both assertion and reason are correct but reason is correct explanation for assertion

C assertion is correct but reason is false

D both assertion and reason are false

Q44. **Assertion:** If the pair of lines are coincident, then we say that pair of lines is consistent and it has a unique solution. **1 Mark**

Reason: If the pair of lines are parallel, then the pair has no solution and is called inconsistent pair of equations.

A Both assertion (A) and reason (R) are true and reason (R) isthe 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

Q45. **Assertion:** The slope of the line which lies in the second and fourth quadrant is negative. **1 Mark**

Reason: The slope of the line y= -x + 6 is -1

A both assertion and reason are correct and reason is correct explanation for assertion

B both assertion and reason are correct but reason is correct explanation for assertion

C assertion is correct but reason is false

D both assertion and reason are false