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CBSE Class 10 · Maths

Pair of Linear Equations in Two Variables

10 most probable questions for Boards 2027

Q1. 0.5 marks · Very short answer

For $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$, state the ratio condition that identifies intersecting lines.

Answer

Intersecting lines are identified by $a_1/a_2 \neq b_1/b_2$, and have a unique solution.

Q2. 1 mark · Multiple choice

A situation gives two conditions involving two unknown quantities. Which is the appropriate way to represent it as a pair of linear equations?
(A) Assign variables to the unknown quantities and express each condition as an equation.
(B) Assign one variable to both unknowns and write a quadratic equation.
(C) Write only one equation, regardless of the number of conditions.
(D) Replace the unknown quantities with fixed values before forming equations.

Answer

(A) Assign variables to the unknown quantities and express each condition as an equation. — Each condition is represented by an equation in the two variables.

Q3. 2 marks · Short answer

For a pair of linear equations, state the type of lines and number of solutions when the lines (i) intersect, (ii) are parallel, and (iii) are coincident.

Answer

Intersecting lines have one common point and a unique solution. Parallel lines have no common point and no solution. Coincident lines have infinitely many common points and infinitely many solutions.

Q4. 3 marks · Medium answer

Solve the pair $3x + 2y = 11$ and $3x - 2y = 5$ by elimination. Show how you use an original equation to find the value of the other variable.

Answer

1. Add the equations: $(3x + 2y) + (3x - 2y) = 11 + 5$, so $6x = 16$ and $x = 8/3$. The equal and opposite coefficients of y make addition the suitable elimination operation.
2. Substitute $x = 8/3$ in the original equation $3x + 2y = 11$: $8 + 2y = 11$, so $2y = 3$ and $y = 3/2$.
3. Therefore, the solution is $(x, y) = (8/3, 3/2)$, satisfying both equations.

Q5. 4 marks · Long answer

State the coefficient-ratio conditions for two lines to be intersecting, coincident or parallel. Explain why these conditions can also be used in reverse to identify the corresponding line configuration.

Answer

The coefficient ratios determine whether two lines intersect, coincide or remain parallel.
1. For intersecting lines, $a_1/a_2 \neq b_1/b_2$. The lines meet at one point, so the pair has a unique solution and is consistent.
2. For coincident lines, $a_1/a_2 = b_1/b_2 = c_1/c_2$. The lines overlap, so the pair has infinitely many solutions and is a dependent, consistent pair.
3. For parallel lines, $a_1/a_2 = b_1/b_2 \neq c_1/c_2$. The lines never meet, so the pair has no solution and is inconsistent.
These conditions can also be used in reverse to identify the configuration of any pair of lines: comparing the ratios reveals whether the lines intersect, coincide or are parallel.

Q6. 5 marks · Long answer

For the pair $2x + 3y = 8$ and $4x + 6y = 7$, use elimination to obtain a statement with no variable and interpret it. Then explain what a true statement with no variable would imply for a pair of linear equations.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/pair-of-linear-equations-in-two-variables

Q7. 1 mark · Multiple choice

In Akhila's fair situation, x is the number of Giant Wheel rides and y is the number of Hoopla games. Which pair of equations represents the conditions that the games are half the rides and the total cost is ₹20?
(A) $y = 2x$ and $3x + 4y = 20$
(B) $y = x/2$ and $3x + 4y = 20$
(C) $y = x/2$ and $4x + 3y = 20$
(D) $x = y/2$ and $3x + 4y = 20$

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/pair-of-linear-equations-in-two-variables

Q8. 2 marks · Short answer

In the elimination method, what is done to the equations before adding or subtracting them, and why?

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Q9. 3 marks · Medium answer

After substitution, a pair of equations reduces first to 5 = 5 and, in another case, to 5 = 8. State what each result tells you about the corresponding pair of equations.

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Q10. 5 marks · Long answer

Describe how a pair of linear equations in two variables can be solved graphically and algebraically, naming the two algebraic methods. Then state the coefficient-ratio conditions that identify a pair as (i) consistent with a unique solution, (ii) inconsistent, and (iii) dependent and consistent.

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