



A Level Maths

Topic: Simultaneous Equations (Linear and Quadratic)

Instructions

Answer all questions. Show complete working. Solve the simultaneous equations using appropriate methods.

Practice Questions

1. Solve the following system of equations:

- (i) $x + y = 7$ and $x - y = 3$
- (ii) $2x + 3y = 8$ and $x - y = 1$
- (iii) $3x - 2y = 7$ and $x + y = 5$
- (iv) $5x - 4y = 6$ and $2x + y = 9$

2. Solve the following system of equations by substitution:

- (i) $x + 2y = 8$ and $3x - y = 5$
- (ii) $4x - 5y = 3$ and $2x + y = 6$
- (iii) $x - 2y = 4$ and $3x + y = 9$

3. Solve the following system of equations by elimination:

- (i) $3x + 2y = 5$ and $5x - 3y = 7$
- (ii) $2x + 3y = 8$ and $4x - y = 5$
- (iii) $6x - 4y = 10$ and $3x + 2y = 6$

4. Solve the following system of equations where one equation is linear and the other is quadratic:

- (i) $x + y = 6$ and $x^2 + y^2 = 20$

(ii) $2x + 3y = 5$ and $x^2 + y^2 = 25$

(iii) $x + 3y = 10$ and $x^2 + y^2 = 50$

5. Solve the following system of equations by graphical method (optional):

(i) $y = 2x + 1$ and $y = -x + 5$

(ii) $3x - y = 4$ and $2x + y = 10$

(iii) $x + y = 4$ and $x - y = 2$

6. Solve the following quadratic system by substitution:

(i) $x + y = 5$ and $x^2 + y^2 = 13$

(ii) $2x + 3y = 7$ and $x^2 + y^2 = 10$

(iii) $x + 4y = 9$ and $x^2 + y^2 = 25$

Multiple-Choice Questions

1. Which of the following is the solution to the system of equations:

$$2x + y = 5 \quad \text{and} \quad x - y = 1$$

A. $x = 2, y = 1$

B. $x = 3, y = 2$

C. $x = 1, y = 3$

D. $x = 4, y = 1$

2. What is the solution to the system of equations:

$$3x + 4y = 10 \quad \text{and} \quad 5x - 2y = 12$$

A. $x = 2, y = 1$

B. $x = 3, y = 1$

C. $x = 1, y = 2$

D. $x = 4, y = 0$

3. Which of the following is the solution to the system of equations:

$$x + y = 7 \quad \text{and} \quad x^2 + y^2 = 50$$

A. $x = 5, y = 2$

B. $x = 6, y = 1$

C. $x = 7, y = 0$

D. $x = 3, y = 4$

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