

Simultaneous (Linear) Equations

Chapter 6: Simultaneous (Linear) Equations · Topic 1

Key Concept

The substitution method solves one equation for a variable, then substitutes that expression into the other equation.

The elimination method adds or subtracts equations to eliminate one variable, making it easier to solve for the remaining variable.

For example, solving $x+y=10$ and $x-y=2$: adding gives $2x=12$, so $x=6$, then $y=4$ (from $x+y=10$).

Simultaneous equations are useful for solving real-life problems involving two unknowns, like finding two numbers given their sum and difference.

Quick Revision Notes

- Simultaneous equations have the same variables.
- Substitution solves one equation, substitutes into other.
- Elimination adds/subtracts to remove a variable.
- $x+y=10$, $x-y=2$: add to get $2x=12$, $x=6$, $y=4$.
- This finds values satisfying both equations.
- Useful for problems with two unknowns.
- Example: finding numbers from sum and difference.
- Both methods lead to the same solution.

Practice Questions

- 1 Solve $x+y=15$ and $x-y=5$ using elimination.
- 2 Solve $2x+y=10$ and $x=3$ using substitution.
- 3 Discuss when substitution might be easier than elimination.
- 4 Create your own simultaneous equations and solve them.
- 5 Solve a word problem using simultaneous equations.
- 6 Explain the elimination method in your own words.