

Simultaneous Equations

Practice Worksheet · GCSE Maths (Higher Tier for Q5–6)

Easy

1. Solve: $x + y = 7$ and $x - y = 1$
2. Solve: $2x + y = 9$ and $x + y = 5$

Medium

3. Solve: $3x - 2y = 6$ and $x + 2y = 10$
4. Solve: $5x + 2y = 19$ and $3x - 2y = 5$

Hard (linear and quadratic)

5. Solve: $y = x + 2$ and $x^2 + y^2 = 20$
6. Solve: $y = x - 1$ and $x^2 + y^2 = 25$

Answer Key

Simultaneous Equations · Full Worked Solutions

1. $x + y = 7$, $x - y = 1$

Add the equations: $2x = 8$

Answer: $x = 4$, $y = 3$

2. $2x + y = 9$, $x + y = 5$

Subtract the equations: $x = 4$

Answer: $x = 4$, $y = 1$

3. $3x - 2y = 6$, $x + 2y = 10$

Add the equations: $4x = 16$

Answer: $x = 4$, $y = 3$

4. $5x + 2y = 19$, $3x - 2y = 5$

Add the equations: $8x = 24$

Answer: $x = 3$, $y = 2$

5. $y = x + 2$, $x^2 + y^2 = 20$

Substitute and expand: $2x^2 + 4x - 16 = 0$

Factorise: $(x - 2)(x + 4) = 0$

Answer: $x = 2$, $y = 4$ or $x = -4$, $y = -2$

6. $y = x - 1$, $x^2 + y^2 = 25$

Substitute and expand: $2x^2 - 2x - 24 = 0$

Factorise: $(x - 4)(x + 3) = 0$

Answer: $x = 4$, $y = 3$ or $x = -3$, $y = -4$