FOUNDATION & HIGHER

HIGHER EXTENDS

Name ..... Class .....

A19: Simultaneous equations

Linear/linear and linear/quadratic simultaneous equations

20 marks · 25 minutes · Non-calculator

1) Solve the simultaneous equations

$3x + 2y = 16$ $x - 2y = 0$

x = ... y = ...

[Question 1: 3 marks]

2) Solve the simultaneous equations

$5x + 3y = 11$ $2x + 4y = 10$

x = ... y = ...

[Question 2: 3 marks]

3) Solve the simultaneous equations

$$y = x + 1 \qquad x^2 + y^2 = 13$$

.....

[Question 3: 4 marks]

4) Solve the simultaneous equations

$2x + y = 7$ $3x - y = 8$

$x =$ ..... $y =$ .....

[Question 4: 3 marks]

5) Solve the simultaneous equations

$4x - 3y = 6$ $2x + 5y = 16$

$x =$ ..... $y =$ .....

[Question 5: 3 marks]

6) Solve the simultaneous equations

$$y = 2x - 1 \qquad y = x^2 - 4$$

.....

[Question 6: 4 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	$x = 4,\ y = 2$	Add to eliminate y: $4x = 16$ (M1); $x = 4$ (A1); $y = 2$ (A1).
2	$x = 1,\ y = 2$	Scale to match coefficients (M1); $x = 1$ (A1); $y = 2$ (A1).
3	$x = 2, y = 3$ and $x = -3, y = -2$	$x^2 + (x + 1)^2 = 13$ (M1); $x^2 + x - 6 = 0$ (M1); $x = 2, -3$ (A1); both pairs (A1).
4	$x = 3,\ y = 1$	Add: $5x = 15$ (M1); A1; A1.
5	$x = 3,\ y = 2$	Double second and subtract: $13y = 26$ (M1); $y = 2$ (A1); $x = 3$ (A1).
6	$x = 3, y = 5$ and $x = -1, y = -3$	$x^2 - 4 = 2x - 1$ (M1); $x^2 - 2x - 3 = 0$ (M1); $x = 3, -1$ (A1); both pairs (A1).