"Solve simultaneous equations, including one linear one quadratic." (Standard)

Question 1

Solve these simultaneous equations:

$y = x^2 + 12x - 12$

$y = 5x + 6$

Question 2

Solve these simultaneous equations:

$y = x^2 - 17x - 17$

$y + 5x = -37$

Question 3

Solve the simultaneous equations

$y = 2(x - 2)^2$ $3x + y = 26$

(5 marks)

Question 4

Solve the simultaneous equations

$y = 2x^2 - 3x - 5$ $10x + 2y + 11 = 0$

(5 marks)

Question 5

Solve these simultaneous equations:

$xy = 6$

$x + y = 7$

Question 6

Solve the simultaneous equations

$y = x - 2,$
$y^2 + x^2 = 10$

Question 7

Solve these simultaneous equations:

$x^2 + 2y^2 = 18$

$2y = x - 6$

Question 8

The curve C has equation $y = \frac{3}{x}$ and the line l has equation $y = 2x + 5$.

One of the points of intersection of C and l is $(-3, -1)$. Find the other point of intersection.

Mark scheme

Question 1

$x = -9, y = -39$ or $x = 2, y = 16$

Question 2

$x = 2, y = -47$ or $x = 10, y = -87$

Question 3

$x = \frac{9}{2}, y = \frac{25}{2}$ or $x = -2, y = 32$

$2x^2 - 8x + 8 = 26 - 3x$	**M1**
$2x^2 - 5x - 18 (= 0)$	**A1**
$(2x - 9)(x + 2) (= 0)$	**M1**
$x = \frac{9}{2}, x = -2$	**A1**
$y = \frac{25}{2}, y = 32$	**A1**

Question 4

$x = -\frac{1}{2}, y = -3$

$2x^2 - 3x - 5 = \frac{-10x - 11}{2}$	*M1
$4x^2 + 4x + 1 = 0$	A1
$(2x + 1)(2x + 1) = 0$	DM1
$x = -\frac{1}{2}$	A1
$y = -3$	A1

Question 5

$x = 1, y = 6$ or $x = 6, y = 1$

Question 6

$x = 3, y = 1$ or $x = -1, y = -3$

Question 7

$x = 0, y = -3$ or $x = 4, y = -1$

Question 8

$\left(\frac{1}{2}, 6\right)$
