HIGHER

8.1 Quadratic Simultaneous Equations: 10-minute Pack

Total Marks

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Solve the simultaneous equations

$y = -x^2 + 5$
$y = x - 1$

(Total for Question 1 is 3 marks)

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2 Solve the simultaneous equations

$y = x^2 - x$
$y = -x^2 + 3x - 2$

(Total for Question 2 is 3 marks)

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3 Solve the simultaneous equations

$y = x^2 + 4x + 1$
$y = -x - 3$

(Total for Question 3 is 3 marks)

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Mark scheme · 8.1 Quadratic Simultaneous Equations: 10-minute Pack

Question 1

equate the two expressions: $-x^2 + 5 = x - 1$	**M1**
rearrange and factorise: $x^2 + x - 6 = (x + 3)(x - 2)$	**M1**
both solution pairs (-3, -4) and (2, 1) cao	**A1**

Answer: (x, y) = (-3, -4) and (2, 1).

Question 2

equate and rearrange: $x^2 - x = -x^2 + 3x - 2 \Rightarrow 2x^2 - 4x + 2 = 0$	**M1**
divide by 2 and factorise: $x^2 - 2x + 1 = (x - 1)^2$	**M1**
single solution (x, y) = (1, 0) cao	**A1**

Answer: (x, y) = (1, 0).

Question 3

equate and rearrange: $x^2 + 4x + 1 = -x - 3 \Rightarrow x^2 + 5x + 4 = 0$	**M1**
factorise: (x + 1)(x + 4) = 0	**M1**
solution pairs (x, y) = (-1, -2) and (-4, 1) cao	**A1**

Answer: (x, y) = (-1, -2) and (-4, 1).

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