

Write your name here

Surname	Other names
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**Pearson Edexcel**  
**International GCSE**

Centre Number	Candidate Number									
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>						<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>				

# Further Pure Mathematics

## Paper 1

Friday 22 January 2016 – Morning <b>Time: 2 hours</b>	Paper Reference <b>4PM0/01</b>
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<b>Calculators may be used.</b>	Total Marks
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### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

*Turn over* ▶

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**Question 1 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with horizontal dotted lines for writing, intended for the student's answer to Question 1.

**(Total for Question 1 is 7 marks)**





**Question 2 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area for writing answers, consisting of multiple horizontal dotted lines.

**(Total for Question 2 is 5 marks)**





**Question 3 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with horizontal dotted lines for writing.

**(Total for Question 3 is 7 marks)**





**Question 4 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area for writing answers, consisting of multiple horizontal dotted lines.

**(Total for Question 4 is 5 marks)**





**Question 5 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with a dotted grid pattern, intended for writing the answer to Question 5.



**Question 5 continued**

Area for writing answers, consisting of multiple horizontal dotted lines.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Question 5 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area for writing answers, consisting of multiple horizontal dotted lines.

**(Total for Question 5 is 9 marks)**





**Question 6 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area for writing answers, consisting of multiple horizontal dotted lines.

**(Total for Question 6 is 6 marks)**





**Question 7 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with a dotted grid pattern, intended for writing the answer to Question 7.



**Question 7 continued**

Area with horizontal dotted lines for writing answers.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Question 7 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with horizontal dotted lines for writing answers.

**(Total for Question 7 is 8 marks)**





**Question 8 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with a dotted grid pattern, intended for writing the answer to Question 8.



**Question 8 continued**

Area for writing the answer to Question 8, consisting of multiple horizontal dotted lines.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Question 8 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area for writing answers, consisting of multiple horizontal dotted lines.

**(Total for Question 8 is 11 marks)**



9

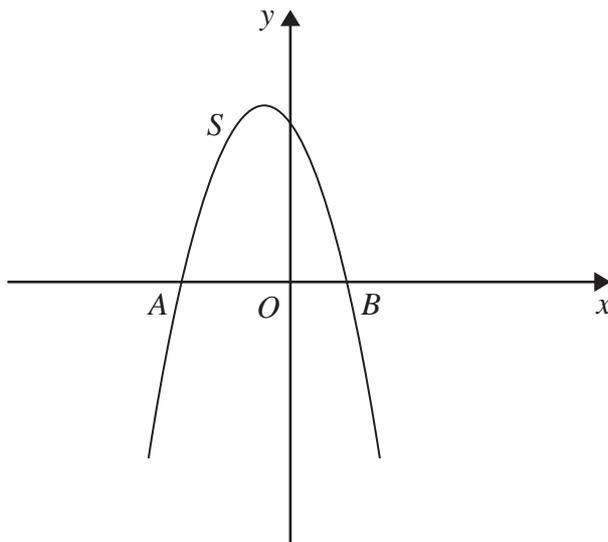


Figure 2

Figure 2 shows the curve  $S$  with equation  $y = 8 - 2x - x^2$

The curve  $S$  crosses the  $x$ -axis at the points  $A$  and  $B$ .

(a) Find the  $x$  coordinate of  $A$  and the  $x$  coordinate of  $B$ . (3)

(b) Use calculus to find the area of the finite region bounded by  $S$  and the  $x$ -axis. (4)

The curve  $T$  with equation  $y = x^2 + x + 6$  intersects  $S$ .

(c) Find the  $x$  coordinates of the points of intersection of  $S$  and  $T$ . (2)

(d) Use calculus to find the area of the finite region bounded by  $S$  and  $T$ . (4)

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**Question 9 continued**

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DO NOT WRITE IN THIS AREA

Area with horizontal dotted lines for writing.



**Question 9 continued**

Area with horizontal dotted lines for writing answers.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Question 9 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with horizontal dotted lines for writing, intended for the answer to Question 9.

**(Total for Question 9 is 13 marks)**





**Question 10 continued**

DO NOT WRITE IN THIS AREA

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DO NOT WRITE IN THIS AREA

A large rectangular area with a dotted grid pattern, intended for writing the answer to Question 10.



**Question 10 continued**

Area for writing the answer to Question 10, consisting of multiple horizontal dotted lines.

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Question 10 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area with horizontal dotted lines for writing.

**(Total for Question 10 is 11 marks)**





**Question 11 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with a rounded border, containing numerous horizontal dotted lines for writing.



**Question 11 continued**

Area with horizontal dotted lines for writing answers.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



**Question 11 continued**

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

A large rectangular area with a rounded border, containing numerous horizontal dotted lines for writing.



**Question 11 continued**

Area with horizontal dotted lines for writing answers.

**(Total for Question 11 is 18 marks)**

**TOTAL FOR PAPER IS 100 MARKS**

DO NOT WRITE IN THIS AREA

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