

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
TOTAL	



General Certificate of Education  
Advanced Subsidiary Examination  
June 2014

# Mathematics

# MPC2

Unit Pure Core 2

Thursday 22 May 2014 9.00 am to 10.30 am

**For this paper you must have:**

- the blue AQA booklet of formulae and statistical tables.

You may use a graphics calculator.

### Time allowed

- 1 hour 30 minutes

### Instructions

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Write the question part reference (eg (a), (b)(i) etc) in the left-hand margin.
- You must answer each question in the space provided for that question. If you require extra space, use an AQA supplementary answer book; do **not** use the space provided for a different question.
- Do not write outside the box around each page.
- Show all necessary working; otherwise marks for method may be lost.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 75.

### Advice

- Unless stated otherwise, you may quote formulae, without proof, from the booklet.
- You do not necessarily need to use all the space provided.

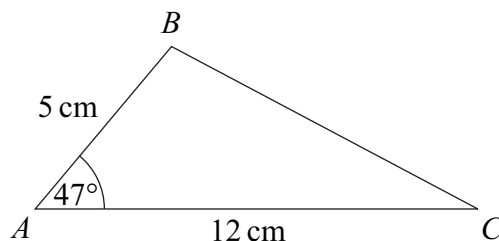


J U N 1 4 M P C 2 0 1

Answer **all** questions.

Answer each question in the space provided for that question.

- 1 The diagram shows a triangle  $ABC$ .



The size of angle  $BAC$  is  $47^\circ$  and the lengths of  $AB$  and  $AC$  are 5 cm and 12 cm respectively.

- (a) Calculate the area of the triangle  $ABC$ , giving your answer to the nearest  $\text{cm}^2$ . **[2 marks]**
- (b) Calculate the length of  $BC$ , giving your answer, in cm, to one decimal place. **[3 marks]**

QUESTION  
PART  
REFERENCE

**Answer space for question 1**



QUESTION  
PART  
REFERENCE

**Answer space for question 1**

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QUESTION  
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**Answer space for question 2**

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QUESTION  
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**Answer space for question 3**

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QUESTION  
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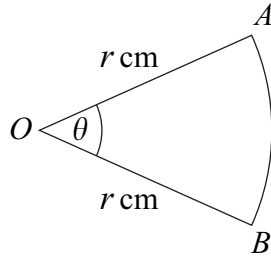
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5

The diagram shows a sector  $OAB$  of a circle with centre  $O$  and radius  $r$  cm.



The angle  $AOB$  is  $\theta$  radians.

The area of the sector is  $12 \text{ cm}^2$ .

The perimeter of the sector is four times the length of the arc  $AB$ .

Find the value of  $r$ .

[6 marks]

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QUESTION  
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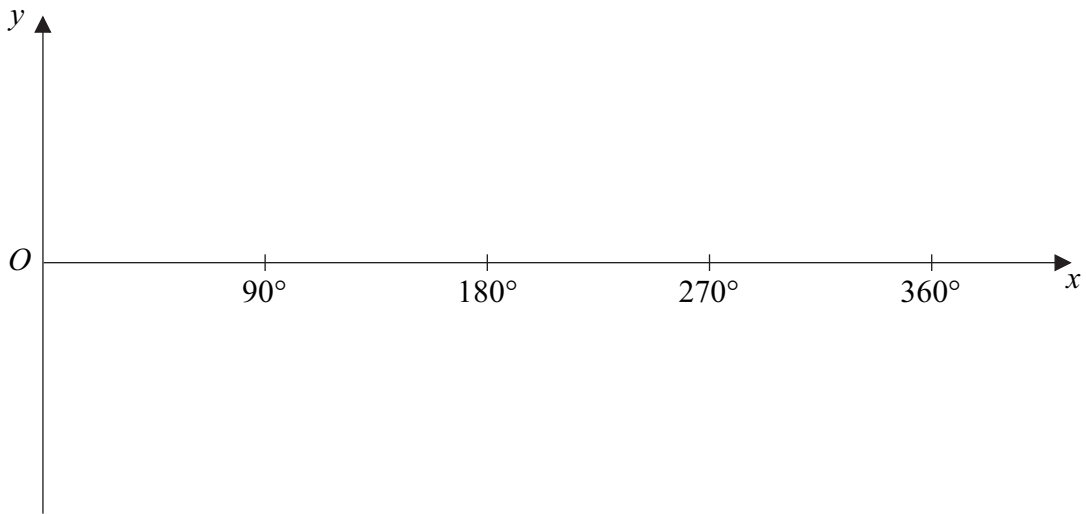


- 6 (a)** Sketch, on the axes given below, the graph of  $y = \sin x$  for  $0^\circ \leq x \leq 360^\circ$ . **[2 marks]**
- (b)** Describe the geometrical transformation that maps the graph of  $y = \sin x$  onto the graph of  $y = \sin 5x$ . **[2 marks]**
- (c)** Describe the single geometrical transformation that maps the graph of  $y = \sin 5x$  onto the graph of  $y = \sin(5x + 10^\circ)$ . **[2 marks]**

QUESTION  
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REFERENCE

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**(a)**



QUESTION  
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REFERENCE

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QUESTION  
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**Answer space for question 7**

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QUESTION  
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QUESTION  
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**Answer space for question 9**

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QUESTION  
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**Answer space for question 9**

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**END OF QUESTIONS**

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