

## 1MA1 Higher themed papers: Circle Theorems B

Write your name here	
Surname	Other names
Centre Number	Candidate Number
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<b>Pearson Edexcel</b> Level 1/Level 2 GCSE (9–1)	
<b>Mathematics</b>	
<b>Circle Theorems B</b>	
	Paper Reference <b>1MA1</b>
<b>You must have:</b> Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.	Total Marks
	<input type="text"/>

### 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.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142 unless the question instructs otherwise.

### Information

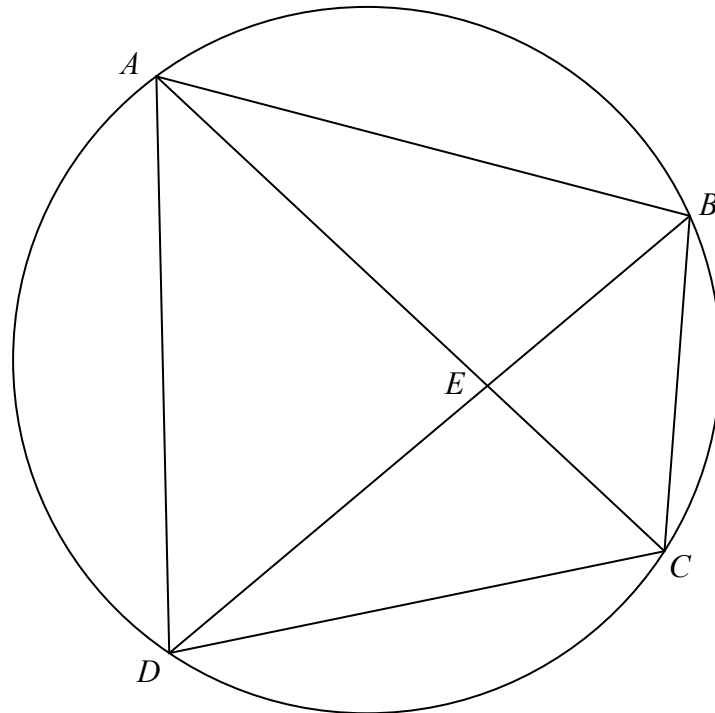
- The total mark for this paper is **23**. There are **6** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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- 1**  $A$ ,  $B$ ,  $C$  and  $D$  are four points on the circumference of a circle.



$AEC$  and  $BED$  are straight lines.

Prove that triangle  $ABE$  and triangle  $DCE$  are similar.  
You must give reasons for each stage of your working.

**(Total for Question 1 is 3 marks)**

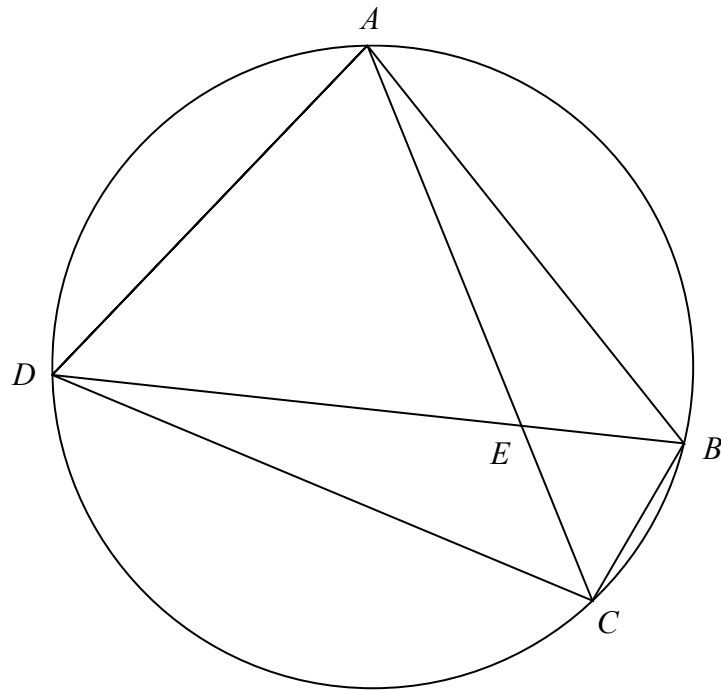
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**1MA1 Higher themed papers: Circle Theorems B**



2

$A$ ,  $B$ ,  $C$  and  $D$  are four points on a circle.



$AEC$  and  $DEB$  are straight lines.

Triangle  $AED$  is an equilateral triangle.

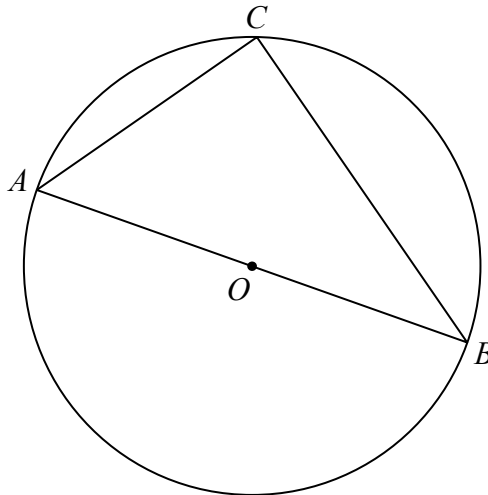
Prove that triangle  $ABC$  is congruent to triangle  $DCB$ .

**(Total for Question 2 is 4 marks)**

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**3**



$A$ ,  $B$  and  $C$  are points on the circumference of a circle, centre  $O$ .  
 $AOB$  is a diameter of the circle.

Prove that angle  $ACB$  is  $90^\circ$

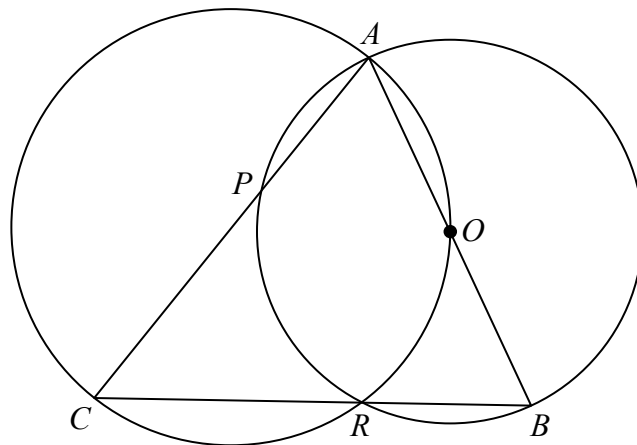
You must **not** use any circle theorems in your proof.

**(Total for Question 3 is 4 marks)**

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4



$A, B, R$  and  $P$  are four points on a circle with centre  $O$ .

$A, O, R$  and  $C$  are four points on a different circle.

The two circles intersect at the points  $A$  and  $R$ .

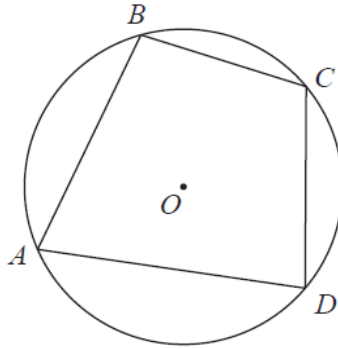
$CPA, CRB$  and  $AOB$  are straight lines.

Prove that angle  $CAB =$  angle  $ABC$ .

(Total for Question 4 is 4 marks)

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- 5  $A, B, C$  and  $D$  are points on the circumference of a circle, centre  $O$ .



Prove that the sum of angle  $ABC$  and angle  $ADC$  is  $180^\circ$

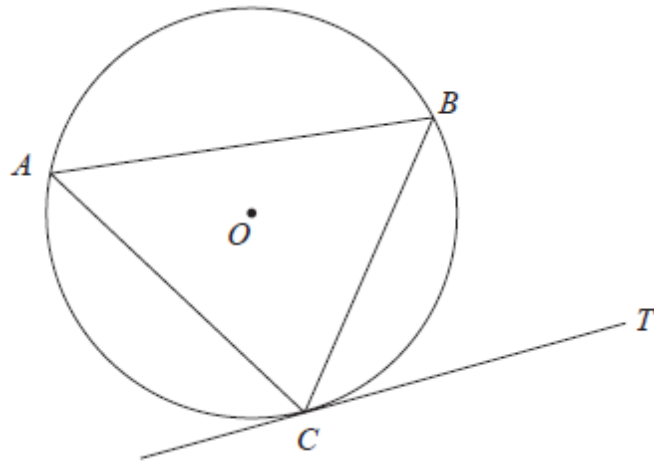
**(Total for Question 5 is 4 marks)**

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6



$A$ ,  $B$  and  $C$  are points on a circle, centre  $O$ .  
 $CT$  is the tangent to the circle at  $C$ .

Prove that angle  $BAC =$  angle  $BCT$ .

(Total for Question 6 is 4 marks)

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TOTAL MARKS FOR PAPER: 23