

Write your name here

Surname

Other names

In the style of:

**Edexcel GCSE**

Centre Number

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Candidate Number

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# Mathematics A

## Circle Theorems

**Higher Tier**

Past Paper Style Questions  
Arranged by Topic

Paper Reference

**1MA0/1H**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks



### 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.*
- **Calculators must not be used.**

### 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.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed.

### 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.

Turn over ►



1.  $ABCD$  is a cyclic quadrilateral within a circle centre  $O$ .  
 $XY$  is the tangent to the circle at  $A$ .  
 Angle  $XAB = 58^\circ$   
 Angle  $BAD = 78^\circ$   
 Angle  $DBC = 34^\circ$

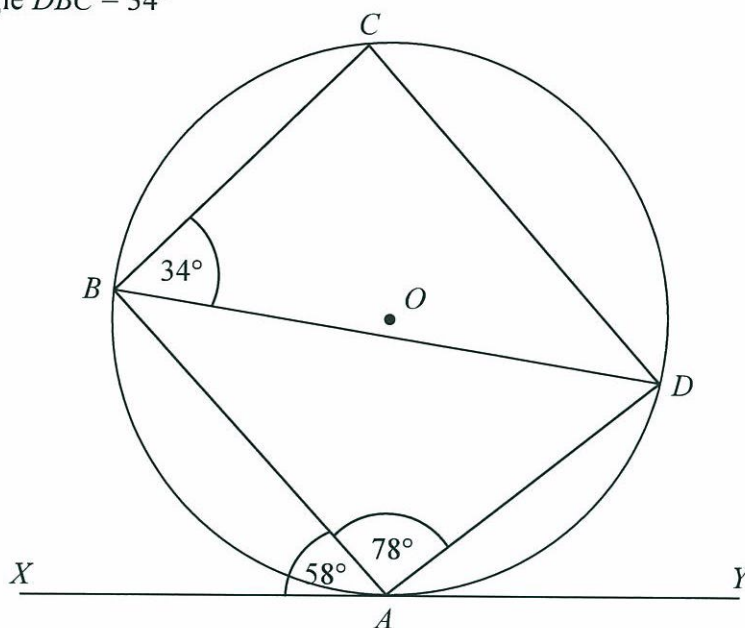


Diagram **NOT** accurately drawn

Prove that  $AB$  is parallel to  $CD$ .

$$\hat{A}DB = 58^\circ \quad \text{--- Angle in opposite segment is the same.}$$

$$\hat{A}BD = 44^\circ \quad \text{--- Angles of a triangle add to } 180^\circ$$

$$\hat{B}CD = 102^\circ \quad \text{--- Opposite angles of a cyclic quadrilateral add to } 180^\circ$$

$$\hat{B}DC = 44^\circ \quad \text{--- Angles of a triangle add to } 180^\circ \quad (5)$$

$$\hat{A}BD = \hat{B}DC = 44^\circ$$

Since alternate angles between two parallel lines are equal,  $AB$  must be parallel to  $CD$ .



2.(a) Here is a circle with centre  $O$ .

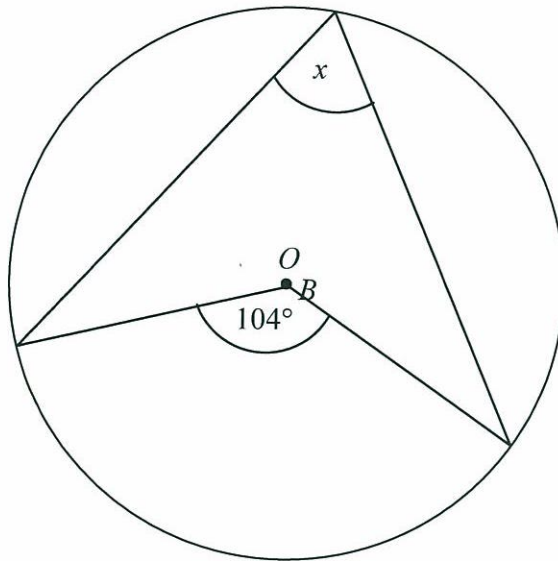


Diagram NOT accurately drawn

Write down the value of  $x$ .

.....52..... degrees  
(1)

(b) Here is a different circle.

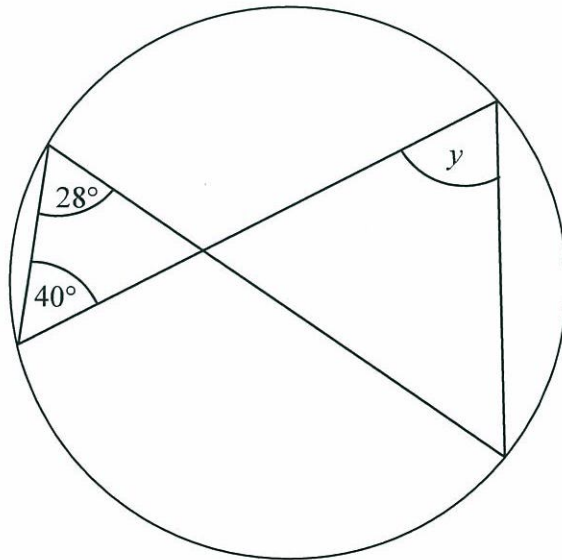


Diagram NOT accurately drawn

Write down the value of  $y$ .

.....28..... degrees  
(1)



3.

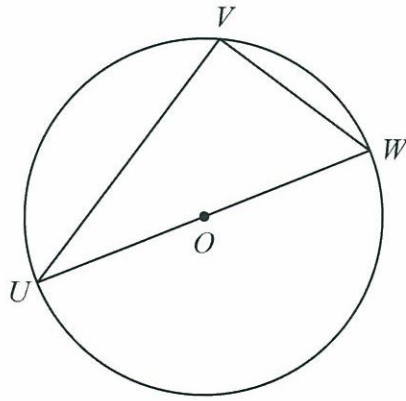


Diagram NOT accurately drawn

$U$ ,  $V$  and  $W$  are points on the circumference of a circle, centre  $O$ .  $UW$  is a diameter of the circle.

(a) (i) Write down the size of angle  $UVW$ .

90°

(ii) Give a reason for your answer.

Lines drawn from either end of a diameter to a point on the circumference form a right-angle where they meet. (2)

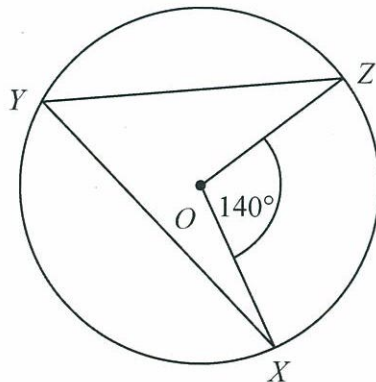


Diagram NOT accurately drawn

$X$ ,  $Y$  and  $Z$  are points on the circumference of a circle, centre  $O$ . Angle  $XOZ = 140^\circ$ .

(b) (i) Work out the size of angle  $XYZ$ .

70°

(ii) Give a reason for your answer.

The angle subtended by an arc at the centre of a circle is twice the angle subtended by the same arc at any other point on the circumference (Double angle theorem) (2)

