Name: _____

IGCSE

Circle Theorems

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

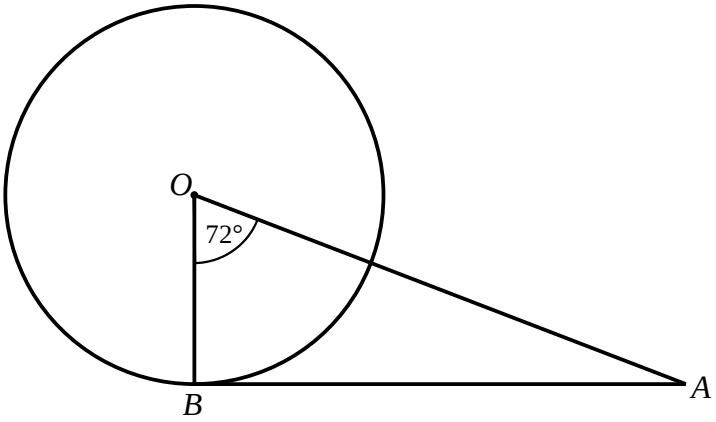
Information

- 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

1



B is a point on the circumference of a circle, centre *O*.
AB is a tangent to the circle.

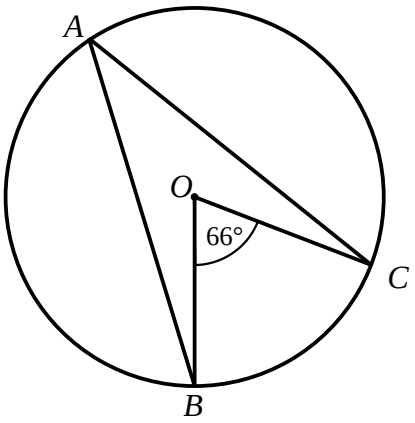
Angle *BOA* = 72°

Work out the size of angle *BAO*.
You must show all your working.

.....°

(Total for Question 1 is 2 marks)

2



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

Angle *BOC* = 66°

(i) Find the size of angle *BAC*.

.....°

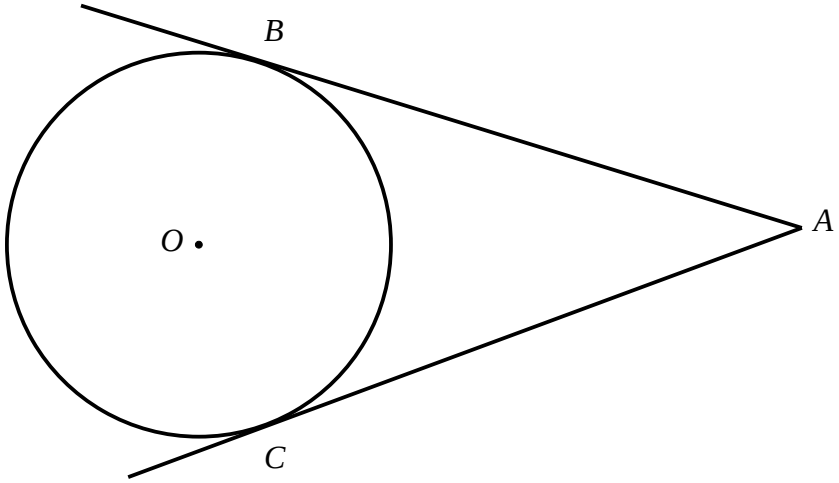
(ii) Give a reason for your answer. .....

.....

.....

(Total for Question 2 is 2 marks)

3



B and *C* are points on a circle, centre *O*.
AB and *AC* are tangents to the circle.

Angle *BAC* = 40°

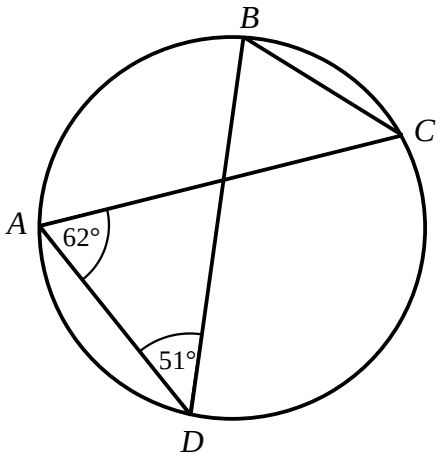
Work out the size of angle *BOC*.
You must show all your working.

°

.....

(Total for Question 3 is 3 marks)

4



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

Angle *CAD* = 62°
Angle *ADB* = 51°

(i) Find the size of angle *ACB*.

°

.....

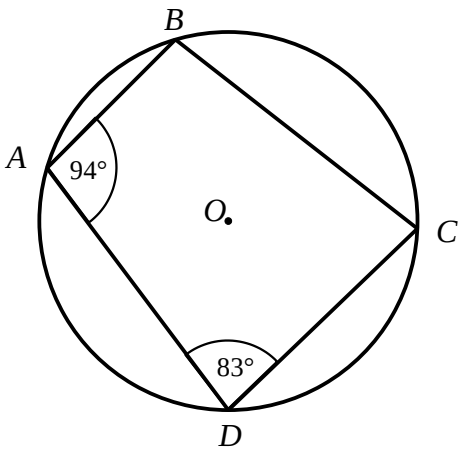
(ii) Give a reason for your answer.

.....

.....

(Total for Question 4 is 2 marks)

5



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

Angle *BAD* = 94°
Angle *ADC* = 83°

(i) Find the size of angle *ABC*.

.....°

(ii) Give a reason for your answer.

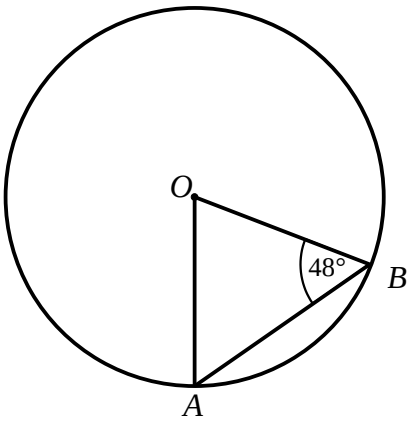
.....

.....

.....

(Total for Question 5 is 2 marks)

6



A and *B* are points on the circumference of a circle, centre *O*.

Angle *ABO* = 48°

(i) Find the size of angle *AOB*.

.....°

(ii) Give a reason for your answer.

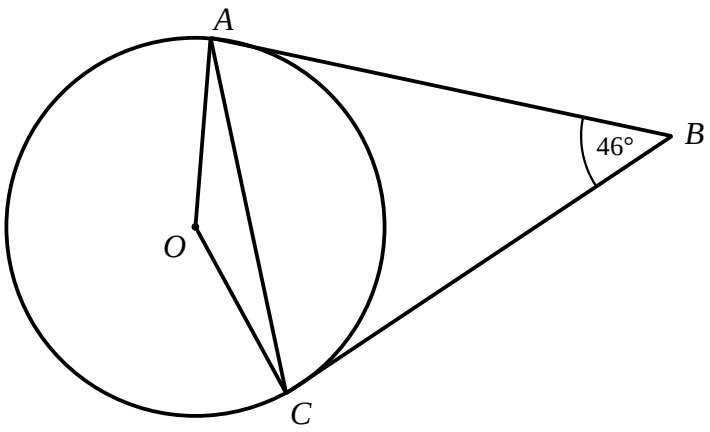
.....

.....

.....

(Total for Question 6 is 2 marks)

7



A and *C* are points on the circumference of a circle, centre *O*.
AB and *BC* are tangents to the circle.

Angle *ABC* = 46°

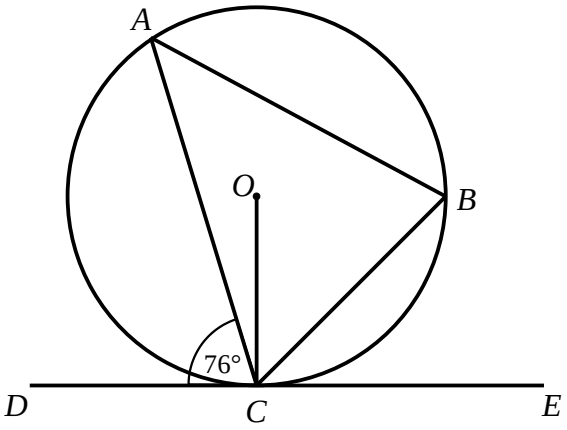
Find the size of angle *OAC*.
Give reasons for each stage of your working.

°

.....

(Total for Question 7 is 4 marks)

8



A and *B* are points on the circumference of a circle, centre *O*.
DCE is a tangent to the circle.

Angle *ACD* = 76°

(a) Find the size of angle *ACO*.
Give reasons for each stage of your working.

°

.....

(2)

(b) Find the size of angle *ABC*.
Give reasons for each stage of your working.

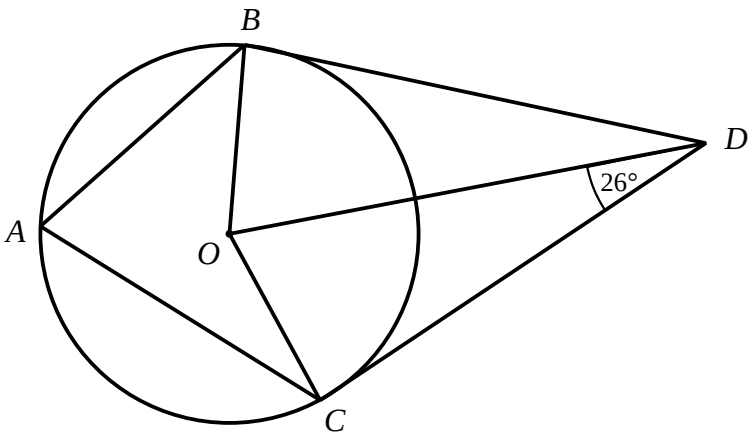
°

.....

(2)

(Total for Question 8 is 4 marks)

9



A, *B* and *C* are points on the circumference of a circle, centre *O*.
BD and *CD* are tangents to the circle.

Angle *ODC* = 26°

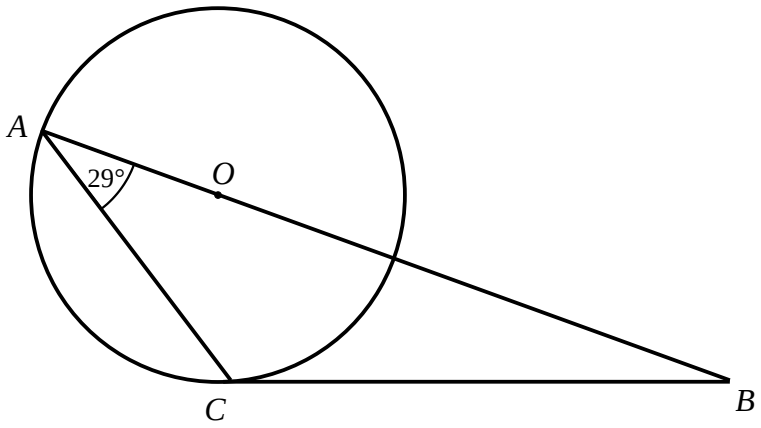
Find the size of angle *BAC*.
Give reasons for each stage of your working.

°

.....

(Total for Question 9 is 4 marks)

10



A and *C* are points on the circumference of a circle, centre *O*.
BC is a tangent to the circle.

Angle *CAB* = 29°

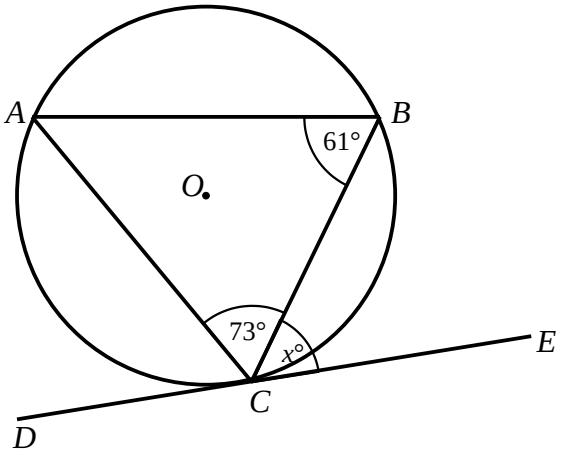
Find the size of angle *ABC*.
You must show all your working.

°

.....

(Total for Question 10 is 4 marks)

11



A, *B* and *C* are points on the circumference of a circle, centre *O*.
DCE is a tangent to the circle.

Angle *ABC* = 61°
Angle *ACB* = 73°
Angle *BCE* = *x*°

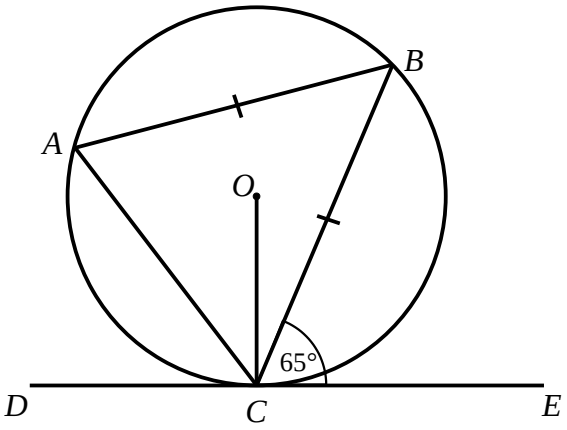
Find the value of *x*.
Give reasons for each stage of your working.

°

.....

(Total for Question 11 is 3 marks)

12



A, *B* and *C* are points on the circumference of a circle, centre *O*.
DCE is a tangent to the circle.

AB = *BC*
Angle *BCE* = 65°

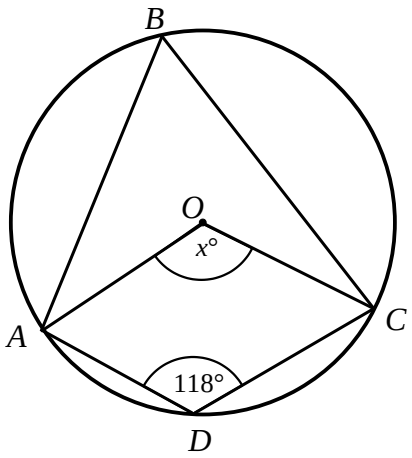
Find the size of angle *AOC*.
You must show all your working.

°

.....

(Total for Question 12 is 4 marks)

13



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

Angle *ADC* = 118°
Angle *AOC* = *x*°

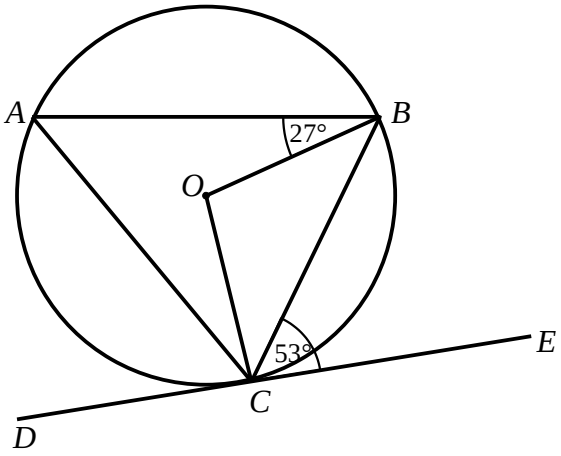
Work out the value of *x*.
You must show all your working.

°

.....

(Total for Question 13 is 3 marks)

14



A, *B* and *C* are points on the circumference of a circle, centre *O*.
DCE is a tangent to the circle.

Angle *ABO* = 27°
Angle *BCE* = 53°

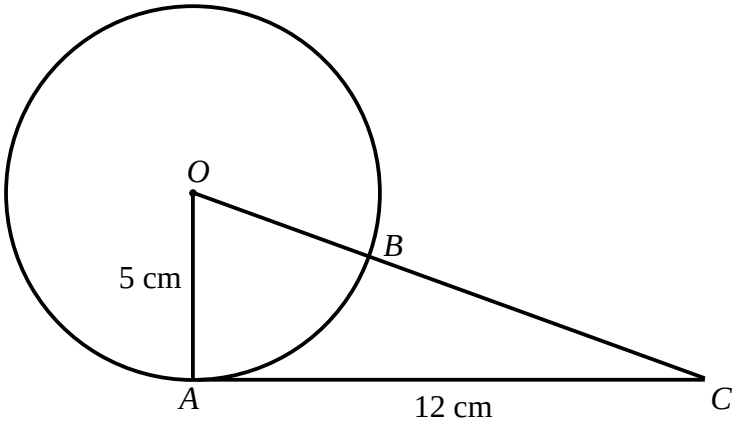
Find the size of angle *ACO*.
Give reasons for each stage of your working.

°

.....

(Total for Question 14 is 4 marks)

15



A and *B* is a point on the circumference of a circle, centre *O*.
AC is a tangent to the circle.
OBC is a straight line.

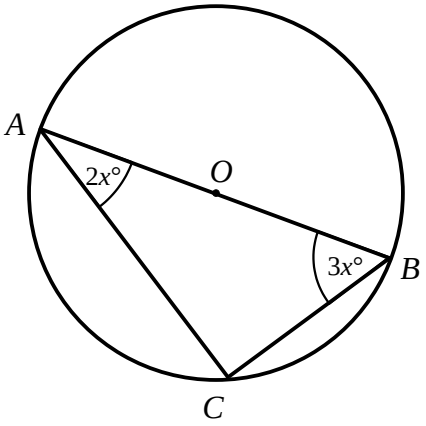
OA = 5 cm
AC = 12 cm

Find the length of *BC*.
You must show all your working.

..... cm

(Total for Question 15 is 4 marks)

16



A, *B* and *C* are points on the circumference of a circle, centre *O*.

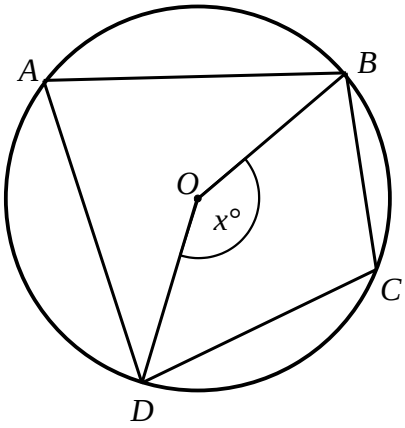
Angle *CAB* = 2*x*°
Angle *ABC* = 3*x*°

Find the value of *x*.
You must show all your working.

x = ...

(Total for Question 16 is 3 marks)

17



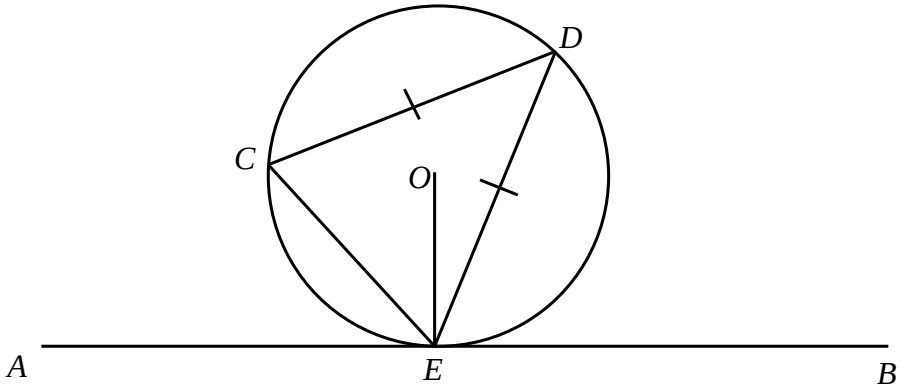
A, *B*, *C* and *D* are points on the circumference of a circle, centre *O*.

Angle *BOD* = *x*°

Find the size of angle *BCD*, in terms of *x*.
Give reasons for each stage of your working.

(Total for Question 17 is 3 marks)

18



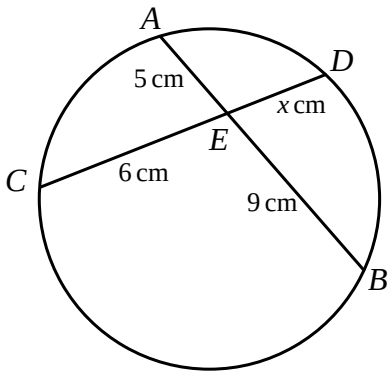
C, *D* and *E* are points on a circle, centre *O*.
AEB is a tangent to the circle at *E*.

CD = *DE*
Angle *AEC* = *x*°

Find the size of angle *OED*, in terms of *x*.
Give reasons for each stage of your working.

(Total for Question 18 is 5 marks)

19



AB and *CD* are chords of a circle that intersect at E.

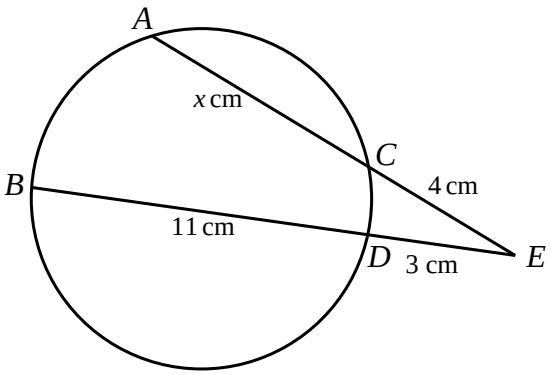
AE = 5 cm
B*E* = 9 cm
CE = 9 cm
DE = *x* cm

Find the value of *x*.

x = ...

(Total for Question 19 is 2 marks)

20



A, *B*, C and *D* are points on a circle.
ACE and *BDE* are straight lines.

AC = *x* cm, *BD* = 10 cm, *CE* = 4 cm and *DE* = 3 cm

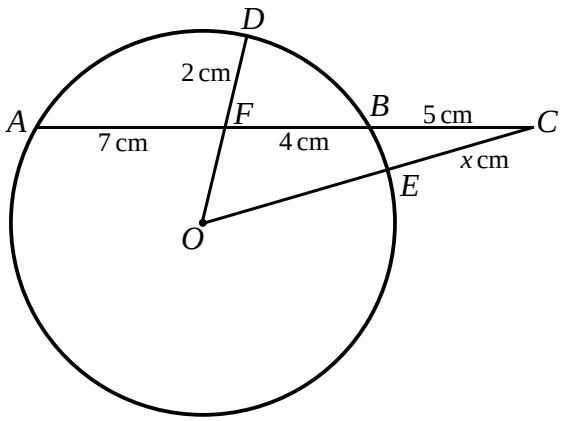
Find the value of *x*.

x = ...

(Total for Question 20 is 3 marks)

June 2018 Paper 2H Question 22

21



A, *D*, *B* and *E* are points on a circle, centre *O*.
AFBC, *OEC* and *OFD* are straight lines.

AF = 7 cm, *FB* = 4 cm, *BC* = 5 cm, *FD* = 2 cm and *CE* = *x* cm.

Work out the value of *x*.
Show your working clearly.

x = ...

(Total for Question 21 is 5 marks)