

Name:.....

Total Marks:.....

GCSE (9-1) Grade 6 Circle Theorems



Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.
- Answer **all** questions.
- Answer the questions in the spaces provided
 - there may be more space than you need.
- **Show all your working out**

Information

- The total mark for this paper is 40.
- 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
- Attempt every question
- Check your answers if you have time at the end

1.

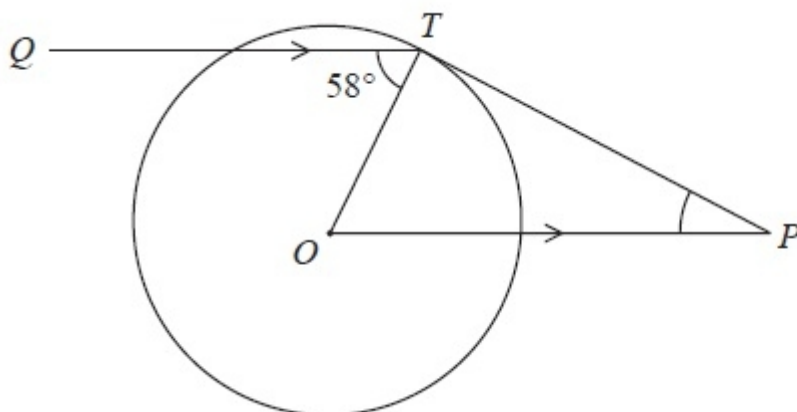


Diagram NOT
accurately drawn

T is a point on a circle, centre O .

Q is a point such that angle $QTO = 58^\circ$

P is the point such that OP is parallel to QT and PT is a tangent to the circle.

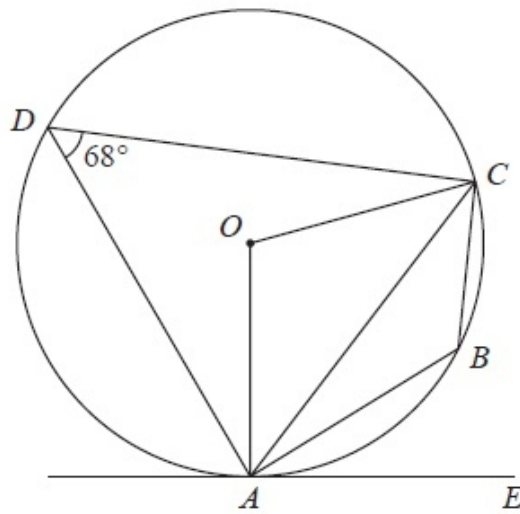
Work out the size of angle OPT .

.....^o

(Total 3 marks)

2.

Diagram NOT
accurately drawn



A, B, C and D are points on a circle, centre O .
 AE is a tangent to the circle.
 Angle $ADC = 68^\circ$

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

.....^o

(ii) Give a reason for your answer.

.....

(2)

(b) (i) Find the size of angle AOC .

.....^o

(ii) Give a reason for your answer.

.....

(2)

(c) Find the size of angle CAE .

.....^o

(1)

(Total 5 marks)

3.

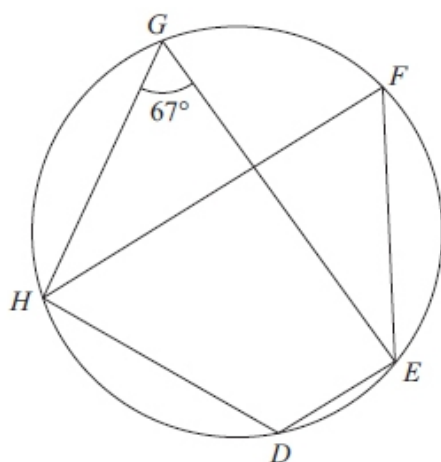


Diagram NOT accurately drawn

D, E, F, G and H are points on a circle.
Angle $EGH = 67^\circ$

(a) Find the size of angle EFH .

.....^o

(1)

(b) Give a reason for your answer.

.....

.....

(2)

(Total 3 marks)

4.

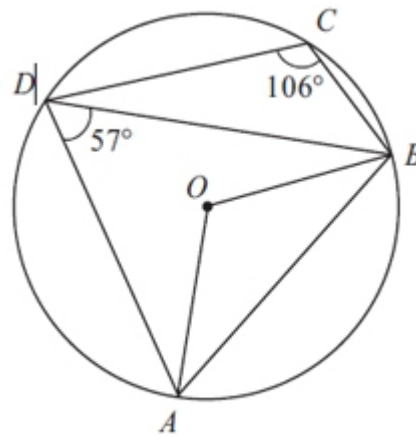


Diagram NOT accurately drawn

A, B, C and D are points on a circle, centre O .
 Angle $ADB = 57^\circ$.
 Angle $BCD = 106^\circ$.

(a) (i) Calculate the size of angle AOB .

.....^o

(ii) Give a reason for your answer.

.....

(2)

(b) Calculate the size of angle BAD .

.....^o

(1)

(Total 3 marks)

5.

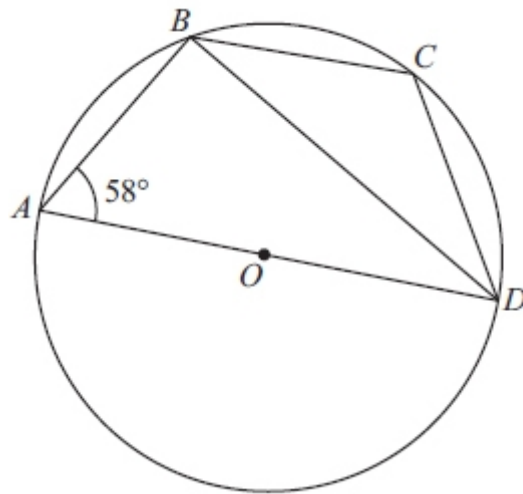


Diagram NOT accurately drawn

A, B, C and D are four points on a circle, centre O .
 AD is a diameter of the circle.
 Angle $BAD = 58^\circ$

(a) Calculate the size of angle ADB .

.....^o

(2)

(b) (i) Calculate the size of angle BCD .

.....^o

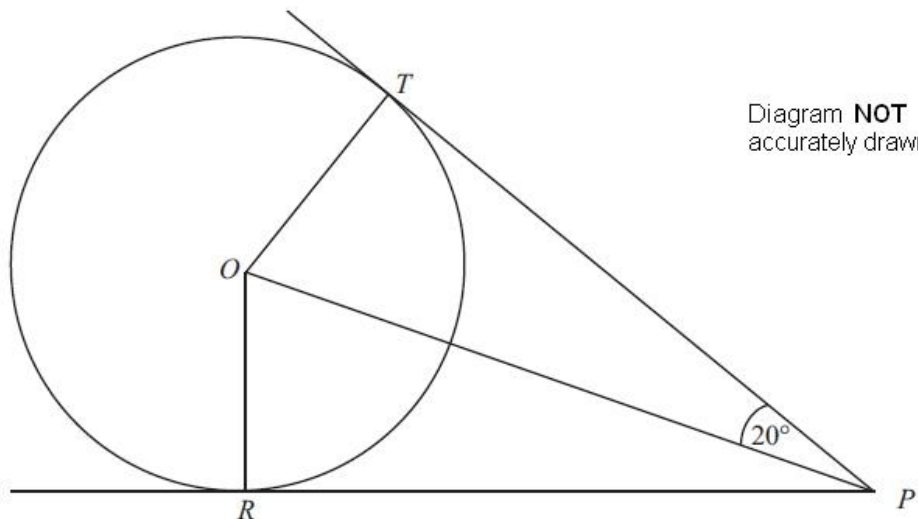
(ii) Give a reason for your answer.

.....

(2)

(Total 4 marks)

*6.



T and R are two points on a circle centre O .
 PT and PR are the tangents to the circle from P .

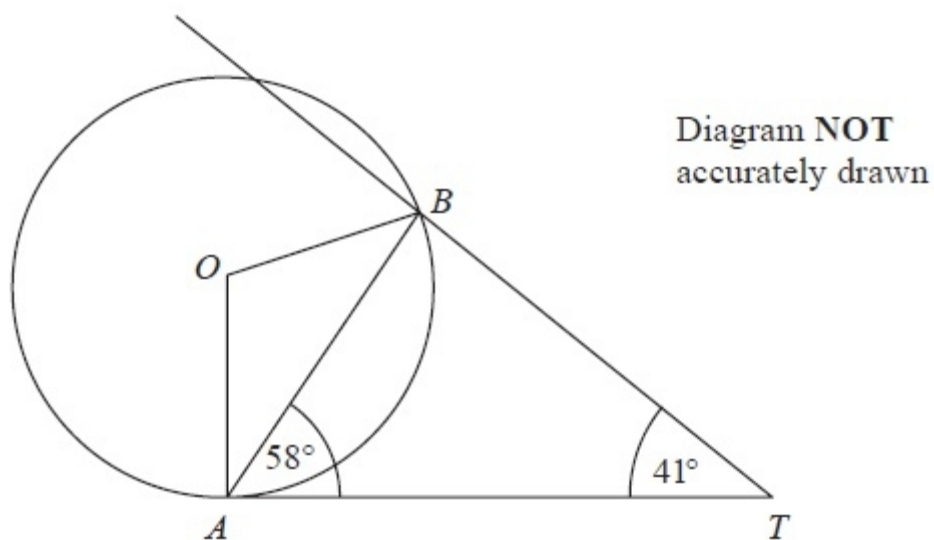
Angle $TPO = 20^\circ$.

Work out the size of angle TOR .

You must give reasons for each stage of your working.

(Total 4 marks)

*7.



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

AT is a tangent to the circle.

Angle $TAB = 58^\circ$.

Angle $BTA = 41^\circ$.

Calculate the size of angle OBT .

You must give reasons at each stage of your working.

(Total 5 marks)

8.

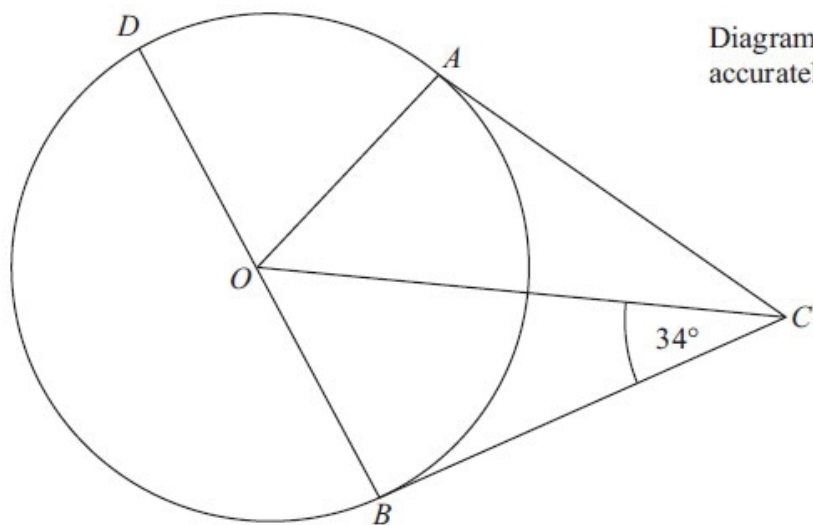


Diagram NOT
accurately drawn

A , B and D are points on the circumference of a circle, centre O .
 BOD is a diameter of the circle.
 BC and AC are tangents to the circle.
 Angle $OCB = 34^\circ$.

Work out the size of angle DOA .

.....

(Total 3 marks)

9.

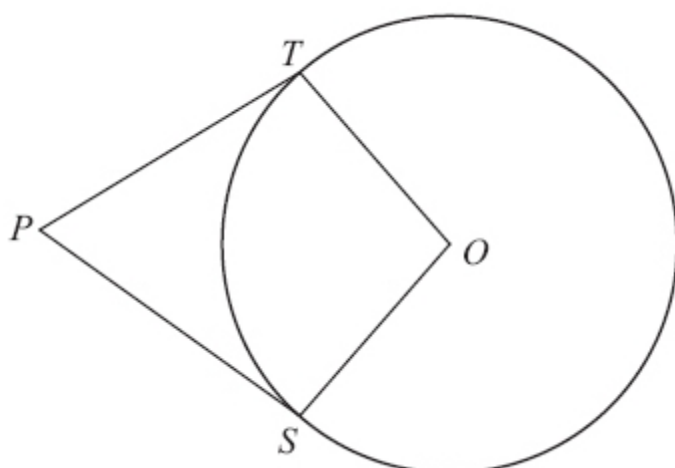


Diagram **NOT**
accurately drawn

S and T are points on the circumference of a circle, centre O .

PT and PS are tangents.

Angle $TPO = 24^\circ$.

Work out the size of angle SOT .

.....°

(Total 3 marks)

10.

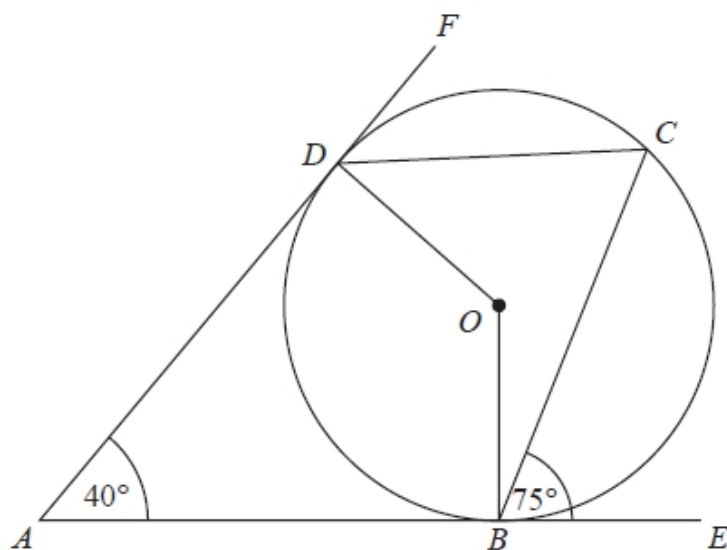


Diagram NOT
accurately drawn

B , C and D are points on the circumference of a circle, centre O .
 ABE and ADF are tangents to the circle.

Angle $DAB = 40^\circ$

Angle $CBE = 75^\circ$

Work out the size of angle ODC .

.....^o

(Total 3 marks)

11.

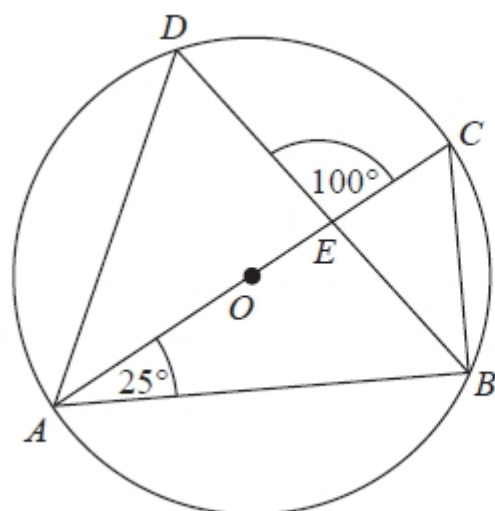


Diagram **NOT**
accurately drawn

A, B, C and D are points on the circumference of a circle, centre O .
 AC is a diameter of the circle.
 AC and BD intersect at E .

Angle $CAB = 25^\circ$
 Angle $DEC = 100^\circ$

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

.....^o

(Total 4 marks)

TOTAL FOR PAPER: 40 MARKS