

GCSE Mathematics

H

Circle Theorems

GCSE Maths Practice

Total Marks	Time	Questions
53	53 min	20

Instructions:

- Do not use a calculator when you see: 
- Answer all questions in the spaces provided.
- Show all your working - marks are awarded for method as well as final answers.
- Cross through any work you do not want to be marked.
- Check your answers if you have time at the end.

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Edexcel-style questions**Q1** 

Grade 7

Edexcel style

AB is a diameter of the circle with centre O. Angle $ABC = 35^\circ$. Find angle BAC, giving reasons for your answer.

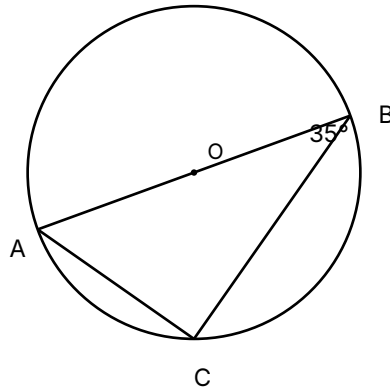


Diagram NOT accurately drawn

Answer _____

Q2

Grade 7

Edexcel style

TA is a tangent to the circle at A. O is the centre of the circle. Find the size of angle OAT, giving a reason for your answer.

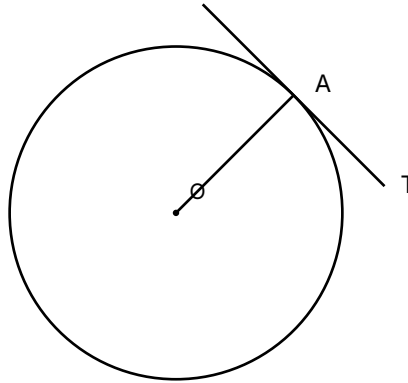


Diagram NOT accurately drawn

Answer _____

Q3

Grade 8

Edexcel style

TA is a tangent to the circle at A. The angle between the tangent TA and the chord AB is 60° . C is a point on the major arc. Find angle ACB, giving a reason for your answer.

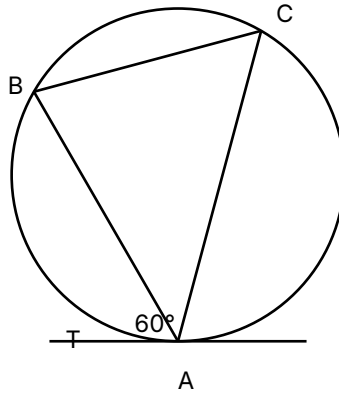


Diagram NOT accurately drawn

Answer _____

Q4

Grade 8

Edexcel style

A, B, C and D lie on the circle. Angle $ADB = (2x + 10)^\circ$ and angle $ACB = (3x - 5)^\circ$. Using the fact that angles in the same segment are equal, find x , then find the size of angle ADB .

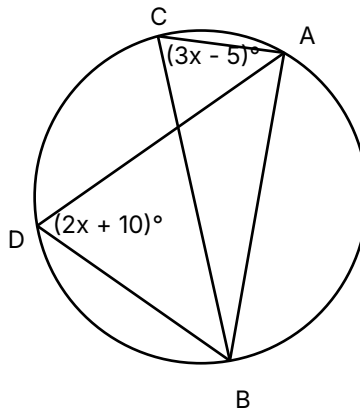


Diagram NOT accurately drawn

Answer _____

Q5

Grade 9

Edexcel style

TA is a tangent to the circle at A. O is the centre, and OA and OB are radii, with angle $AOB = 130^\circ$. Find angle TAB, giving full reasons for your answer.

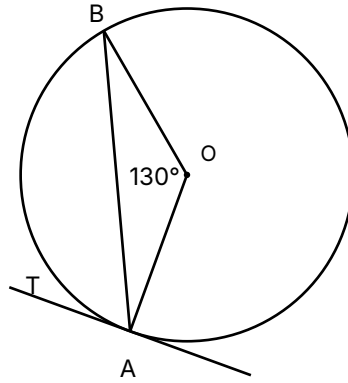


Diagram NOT accurately drawn

Answer _____

AQA-style questions

Q6 

Grade 7

AQA style

O is the centre of the circle. Angle $ACB = 70^\circ$. Find angle AOB , giving a reason for your answer.

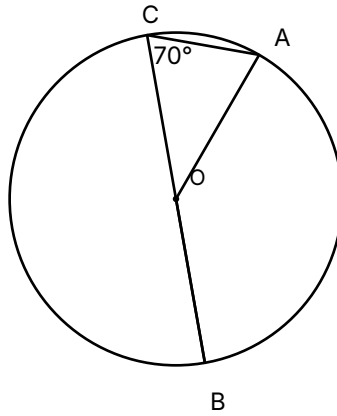


Diagram NOT accurately drawn

Answer _____

Q7

Grade 7

AQA style

TA and TB are tangents to the circle from the external point T. $TA = 9$ cm. Find the length TB, giving a reason for your answer.

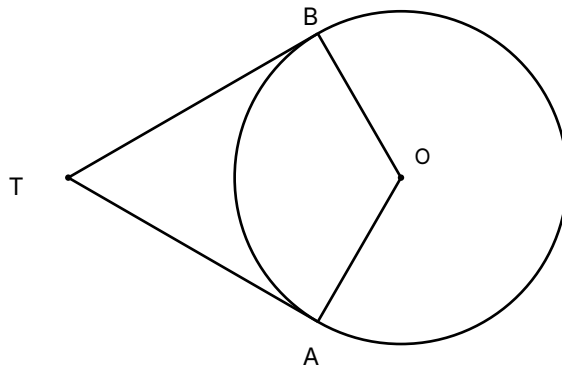


Diagram NOT accurately drawn

Answer _____

Q8

Grade 8

AQA style

TA is a tangent to the circle at A. C is a point on the major arc, with angle $ACB = 70^\circ$. Find the angle between the tangent TA and the chord AB, giving a reason for your answer.

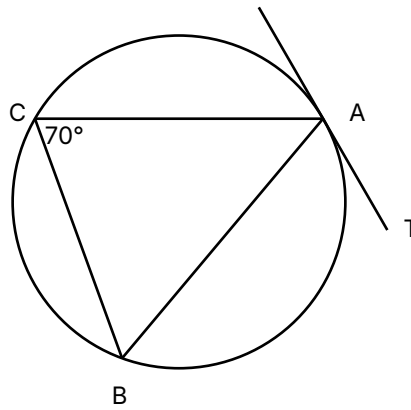


Diagram NOT accurately drawn

Answer _____

Q9

Grade 8

AQA style

ABCD is a cyclic quadrilateral. Angle $DAB = (3x + 15)^\circ$ and angle $BCD = (2x + 25)^\circ$. Find x , then find the size of each angle.

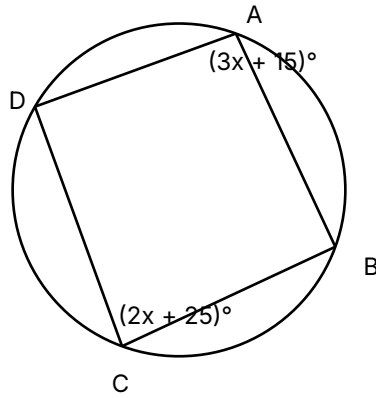


Diagram NOT accurately drawn

Answer _____

Q10

Grade 9

AQA style

A, B, C and D lie on the circle, with O the centre. Angle $ACB = 70^\circ$. Find (a) angle ADB , and (b) angle AOB , giving reasons for your answers.

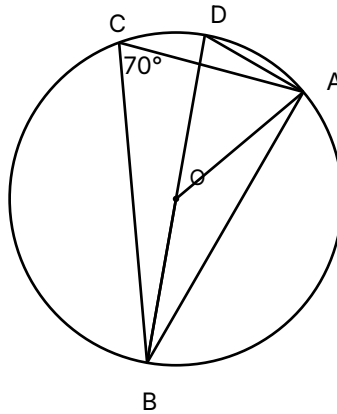


Diagram NOT accurately drawn

Answer _____

OCR-style questions

Q11 

Grade 7

OCR style

A, B, C and D lie on the circle. Angle $ADB = 70^\circ$. Find angle ACB , giving a reason for your answer.

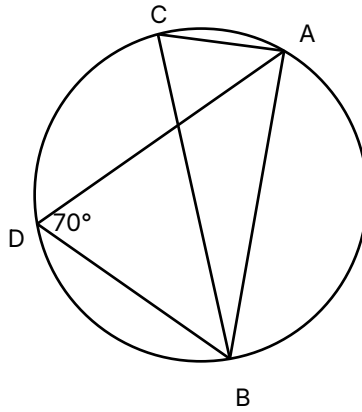


Diagram NOT accurately drawn

Answer _____

Q12

Grade 7

OCR style

O is the centre of the circle. OA and OB are radii. Angle OAB = 40° . Find angle AOB, giving reasons for your answer.

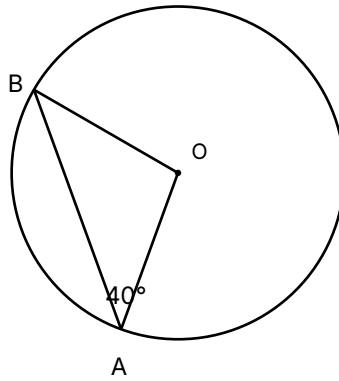


Diagram NOT accurately drawn

Answer _____

Q13

Grade 8

OCR style

O is the centre of the circle. OA and OB are radii, and angle OAB = 25° . C is a point on the major arc. Find (a) angle AOB, and (b) angle ACB, giving reasons for your answers.

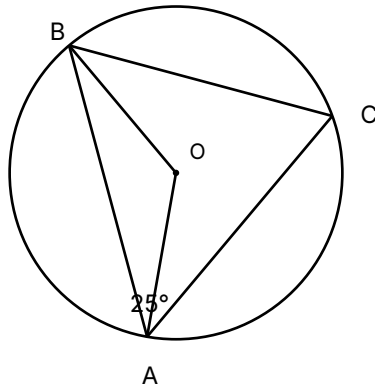


Diagram NOT accurately drawn

Answer _____

Q14

Grade 8

OCR style

TA and TB are tangents to the circle from the external point T. $TA = (2x + 3)$ cm and $TB = (4x - 9)$ cm. Find x , then find the length TA.

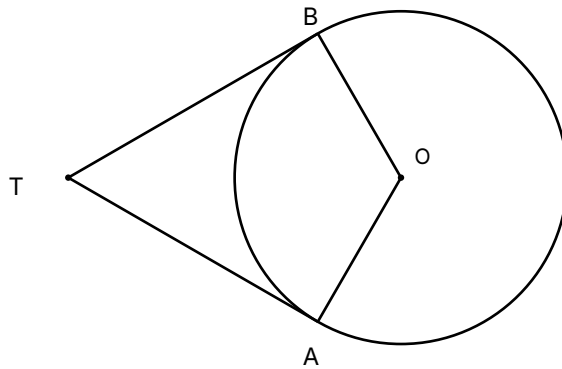


Diagram NOT accurately drawn

Answer _____

Q15

Grade 9

OCR style

TA and TB are tangents to the circle from the external point T, touching the circle at A and B. Angle $ATB = 60^\circ$. C is a point on the major arc. Find (a) angle TAB, and (b) angle ACB, giving reasons for your answers.

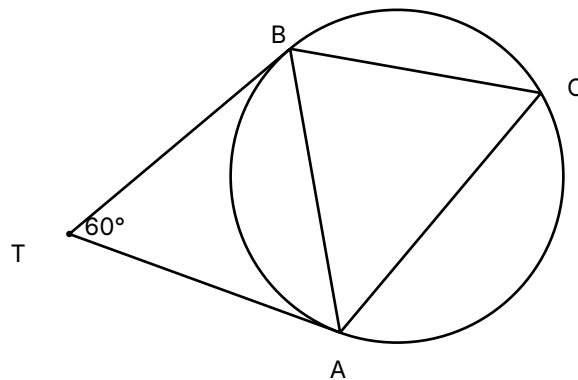


Diagram NOT accurately drawn

Answer _____

Teachably-style questions

Q16 

Grade 7

Teachably style

ABCD is a cyclic quadrilateral. Angle $DAB = 95^\circ$. Find angle BCD, giving a reason for your answer.

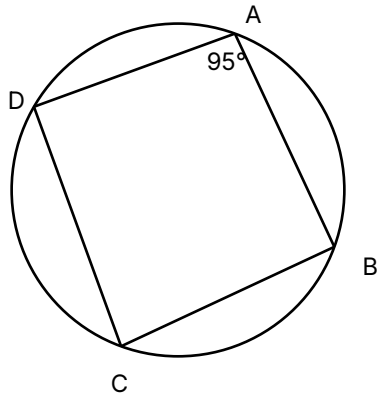


Diagram NOT accurately drawn

Answer _____

teachably

[2 marks]

Q17

Grade 8

Teachably style

O is the centre of the circle. AB is a chord, and OM is the perpendicular from O to AB, meeting AB at M. AB = 16 cm and OM = 6 cm. Find the radius of the circle.

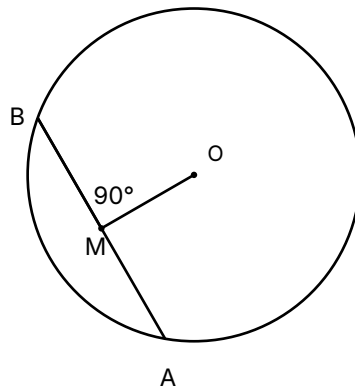


Diagram NOT accurately drawn

Answer _____

teachably

[3 marks]

Q18

Grade 8

Teachably style

AC is a diameter of the circle. ABCD is a cyclic quadrilateral, with angle $BCD = 70^\circ$. Find (a) angle ABC, and (b) angle BAD, giving reasons for your answers.

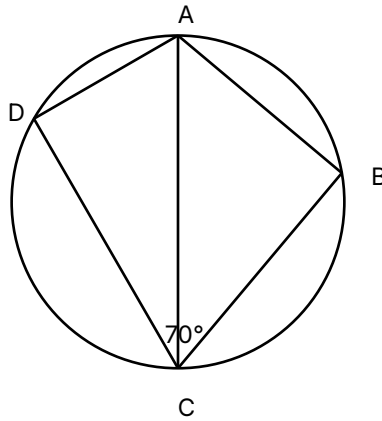


Diagram NOT accurately drawn

Answer _____

teachably

[3 marks]

Q19

Grade 8

Teachably style

TA is a tangent to the circle at A. The angle between TA and chord AB is $(2x + 20)^\circ$. C is a point on the major arc, with angle $ACB = (3x - 10)^\circ$. Find x , then find angle ACB.

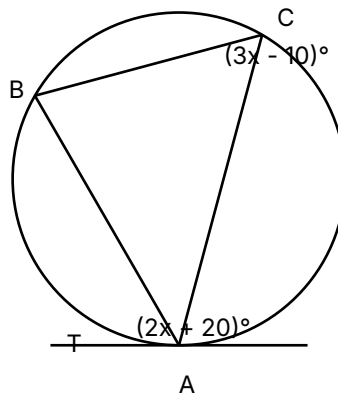


Diagram NOT accurately drawn

Answer _____

Q20

Grade 9

Teachably style

ABCD is a cyclic quadrilateral inscribed in a circle with centre O and radius 13 cm, with angle $ADC = 75^\circ$. AB is also a chord of length 24 cm, and M is the midpoint of AB, with OM drawn perpendicular to AB. Find (a) angle ABC, and (b) the length OM, giving reasons for your answers.

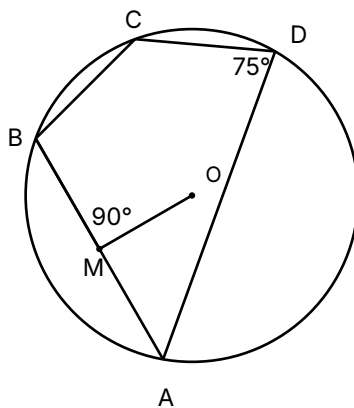


Diagram NOT accurately drawn

Answer _____

teachably

[4 marks]

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