

CIRCLE THEOREMS

16

Examiner
only

11.

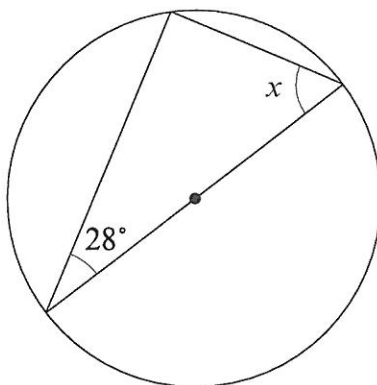


Diagram not drawn to scale

Find the size of the angle marked x .

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[2]

19. Three points A , B and C lie on the circumference of the circle centre O .
The tangent RS meets the circle at A .

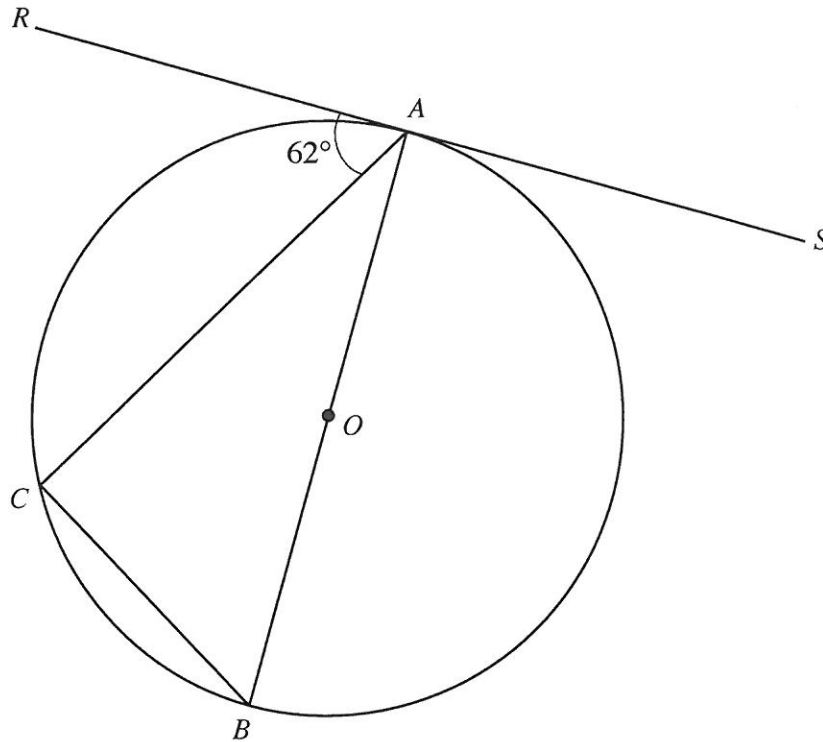


Diagram not drawn to scale.

Given that $\widehat{RAC} = 62^\circ$, find the following angles giving reasons for your answers.

(a) \widehat{ACB}

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(b) \widehat{ABC}

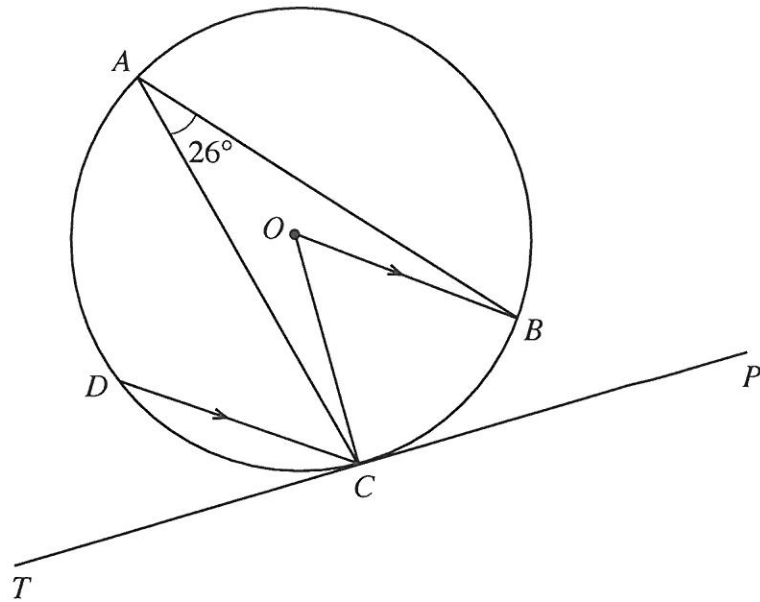
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[3]

13.

*Diagram not drawn to scale.*

Four points A , B , C and D lie on the circumference of the circle centre O .

The tangent TP touches the circle at C . The radius OB is parallel to DC .

Given that $\widehat{BAC} = 26^\circ$, find **each** of the following angles, giving reasons for your answers.

(a) \widehat{BOC}

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(b) \widehat{DCT}

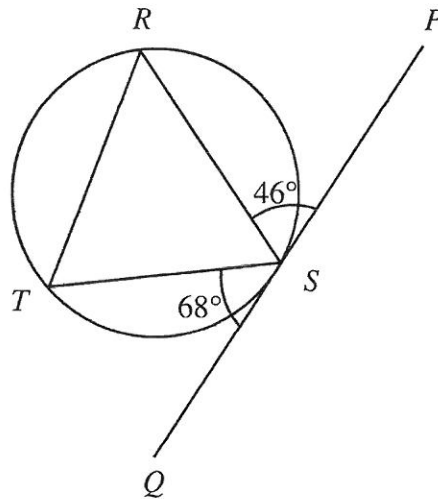
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[2]

(b)

*Diagram not drawn to scale.*

Three points R , S and T lie on the circumference of the circle.
The tangent PQ touches the circle at S .

Find \widehat{TRS} , giving a reason for your answer.

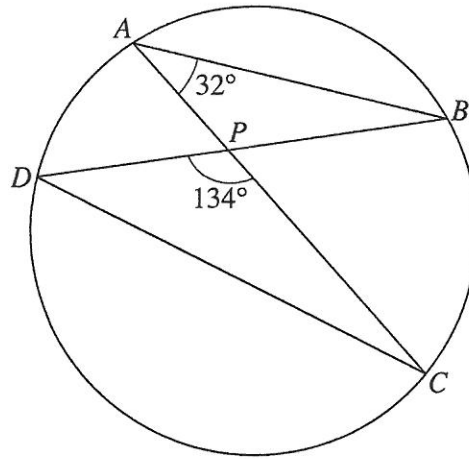
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[2]

15. (a)

*Diagram not drawn to scale.*

Four points A, B, C and D lie on the circumference of the circle.

The lines AC and BD intersect at the point P .

Given that $\widehat{BAC} = 32^\circ$ and $\widehat{DPC} = 134^\circ$, find the size of \widehat{ACD} giving a reason for your answer.

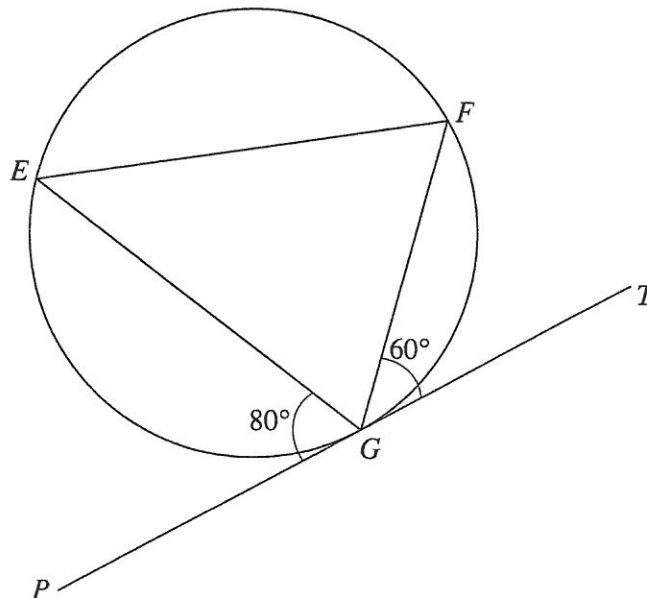
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[2]

(b)

*Diagram not drawn to scale.*

Three points E, F and G lie on the circumference of the circle.

The tangent PT touches the circle at G .

Given that $\widehat{EGP} = 80^\circ$ and $\widehat{FGT} = 60^\circ$, find the size of \widehat{FEG} giving a reason for your answer.

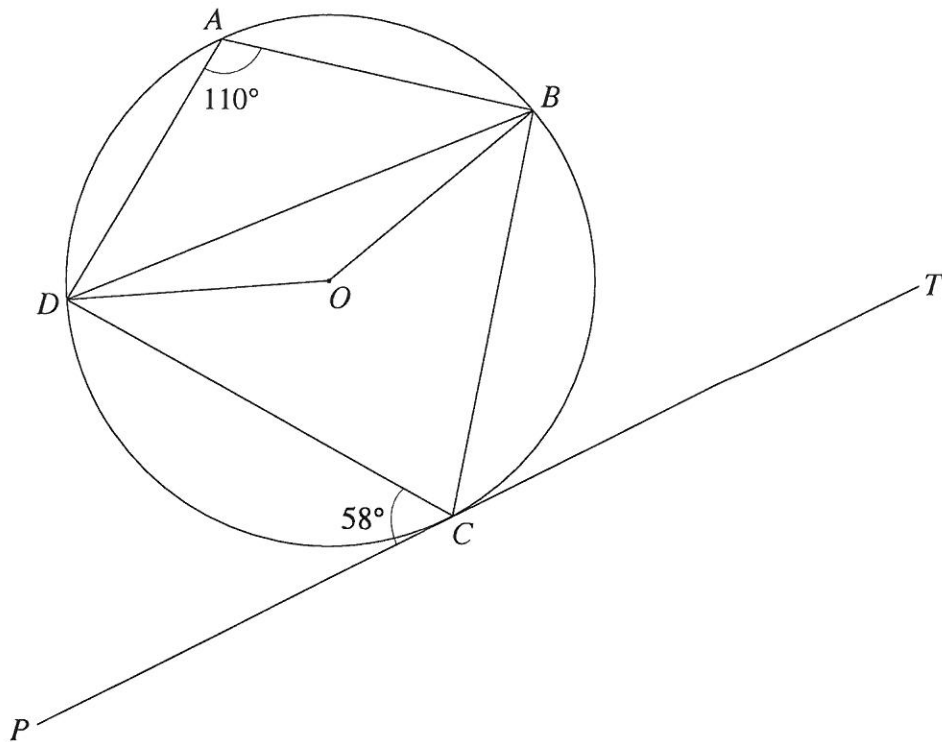
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[2]

20.

*Diagram not drawn to scale.*

Four points A , B , C and D lie on the circumference of the circle with centre O .

The tangent TP touches the circle at C . Given that $\widehat{DCP} = 58^\circ$ and $\widehat{DAB} = 110^\circ$, find **each** of the following angles, giving reasons for your answers.

(a) Reflex \widehat{DOB}

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[1]

(b) \widehat{BDC}

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[2]

16. The points A and B lie on the circumference of a circle with centre O . The straight lines PAQ and RBQ are tangents to the circle.

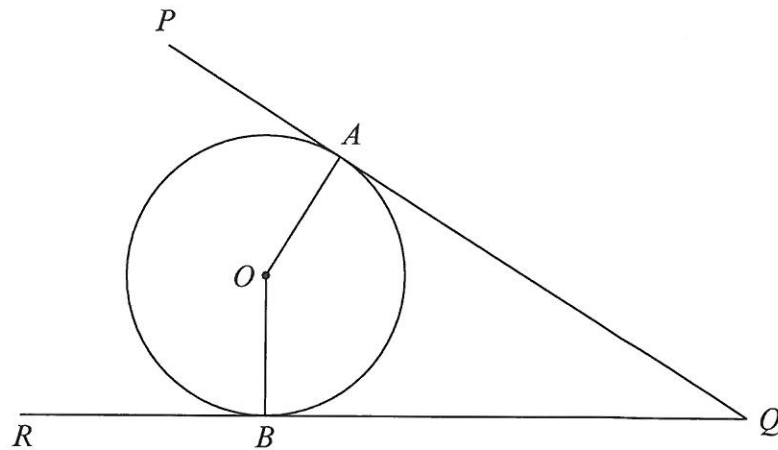


Diagram not drawn to scale

You are given that $\widehat{AOB} = 2x$, where x is measured in degrees.

Write down the size of \widehat{AOQ} in terms of x .
Give reasons in your answer.

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[4]



13. The points A , B and C lie on the circumference of a circle.
The straight line PBT is a tangent to the circle and $\widehat{CBP} = x$, where x is measured in degrees.

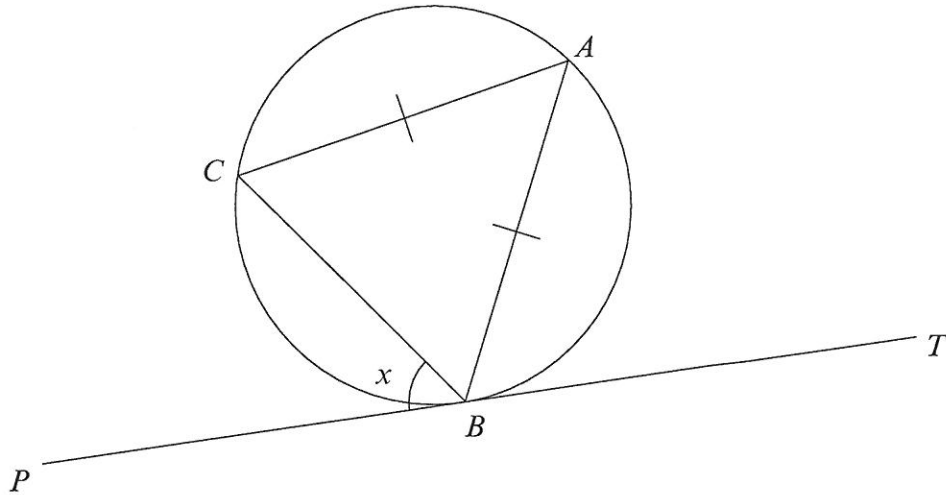


Diagram not drawn to scale

Show, giving reasons in your answer, that the size of \widehat{ABC} in degrees is $90 - \frac{1}{2}x$.

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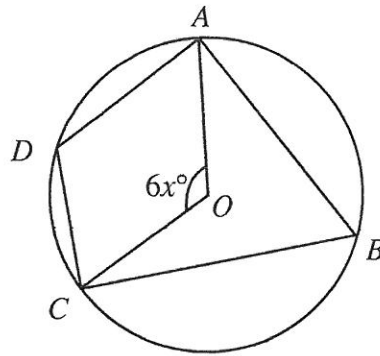
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15. (a)

*Diagram not drawn to scale.*

The diagram shows four points A , B , C and D lying on the circumference of a circle centre O with $\widehat{AOC} = 6x^\circ$.

Find an expression for **each** of the following angles in terms of x .

(i) \widehat{ABC}

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[1]

(ii) \widehat{ADC}

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[1]