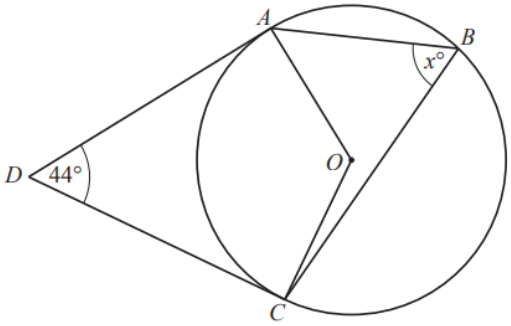
IGCSE PAST PAPER 2 (0580) EXTENDED

CIRCLE THEORME

WRITTEN BY RISHI

1



NOT TO SCALE

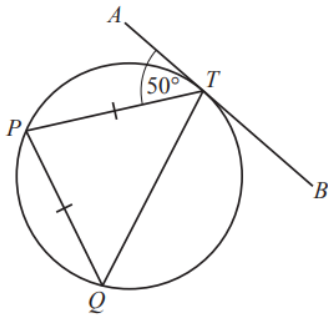
A, B and C are points on a circle, centre O.
DA and DC are tangents.
Angle $ADC = 44°$.

Work out the value of x.

$x =$ ..... [3]

2

(a)



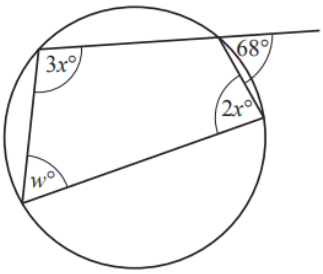
NOT TO SCALE

P, Q and T are points on a circle.
ATB is a tangent to the circle at T and $PT = PQ$.

Find angle TPQ.

Angle TPQ = ... [2]

(b)



NOT TO SCALE

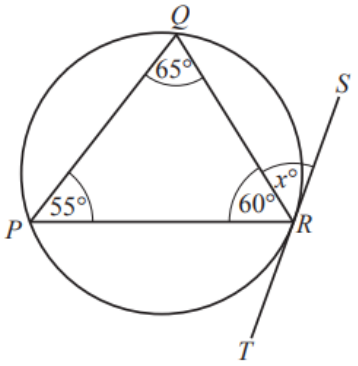
The diagram shows a cyclic quadrilateral with an exterior angle of 68°.

Find the value of w and the value of x.

w = ...

x = ... [3]

3



NOT TO SCALE

P, Q and R are points on a circle.
ST is a tangent to the circle at R.

(a) Write down the value of x.
Give a geometrical reason for your answer.

$x =$ ..... because.....

..... [2]

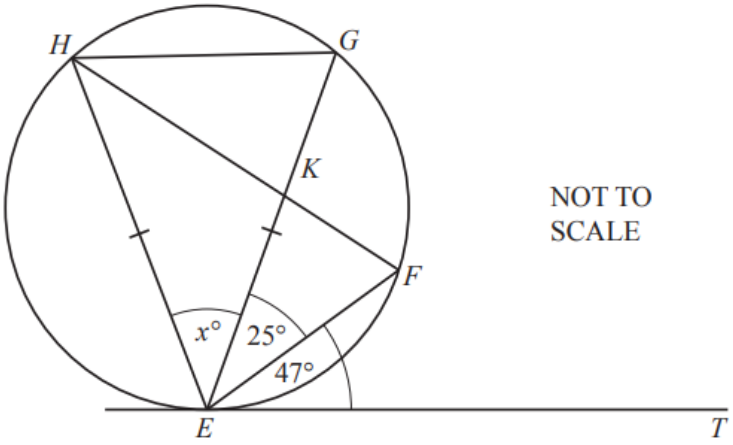
(b) Another tangent from the point S touches the circle at V.

Give a geometrical reason why triangle SVR is isosceles.

.....

..... [1]

4



NOT TO SCALE

Points E, F, G and H lie on the circle and $EG = EH$.
HF and EG intersect at K.
ET is a tangent to the circle at E.
Angle $FET = 47°$ and angle $FEG = 25°$.

Find the value of x.

$x =$ ..... [2]

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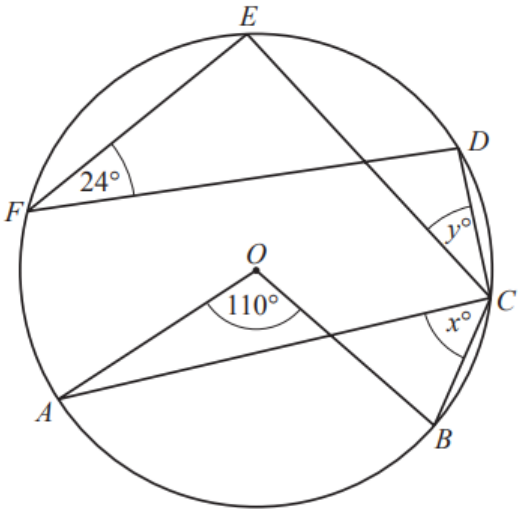


NOT TO SCALE

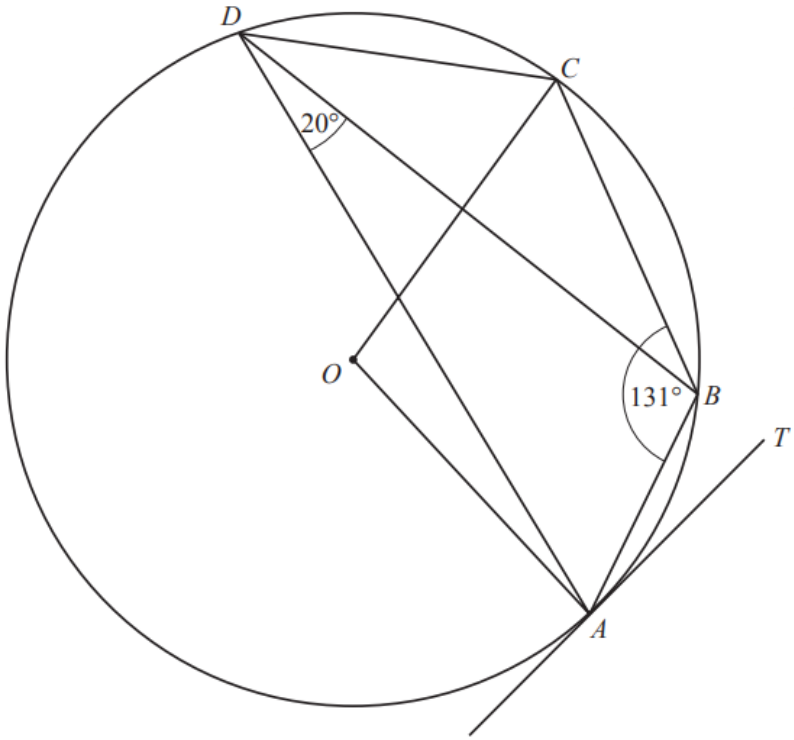
Points A, B, C, D, E and F lie on the circle, centre O.

Find the value of x and the value of y.

$x =$ .....

$y =$ ..... [2]

6



A, B, C and D lie on the circle, centre O.
TA is a tangent to the circle at A.
Angle $ABC = 131°$ and angle $ADB = 20°$.

Find

(a) angle ADC,

Angle $ADC =$ ..... [1]

(b) angle AOC,

Angle $AOC =$ ..... [1]

(c) angle BAT,

Angle $BAT =$ ..... [1]

(d) angle OAB.

Angle $OAB =$ ..... [1]

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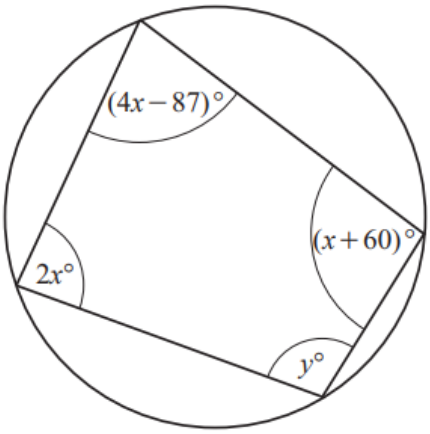


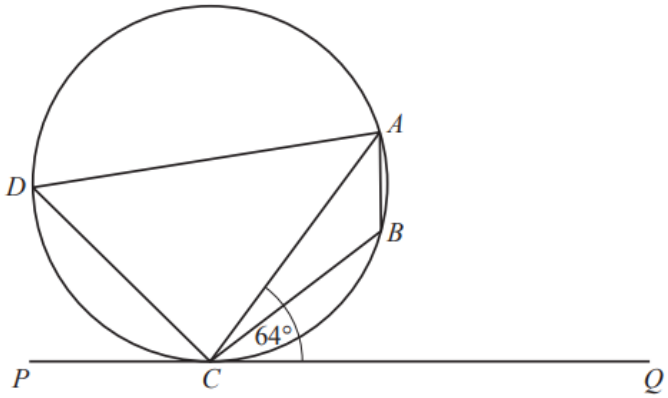
NOT TO SCALE

The diagram shows a cyclic quadrilateral.

Find the value of y.

$y =$ ..... [4]

8



NOT TO SCALE

A, B, C and D lie on the circle.
PCQ is a tangent to the circle at C.
Angle $ACQ = 64°$.

Work out angle ABC, giving reasons for your answer.

Angle ABC = ... because .....

.....

..... [3]

0580/22/F/M/20

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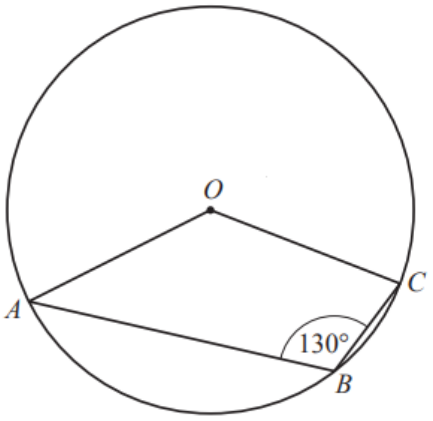

NOT TO SCALE

A, B and C are points on the circle, centre O.

Find the obtuse angle AOC.

Angle AOC = ... [2]

0580/21/M/J/19

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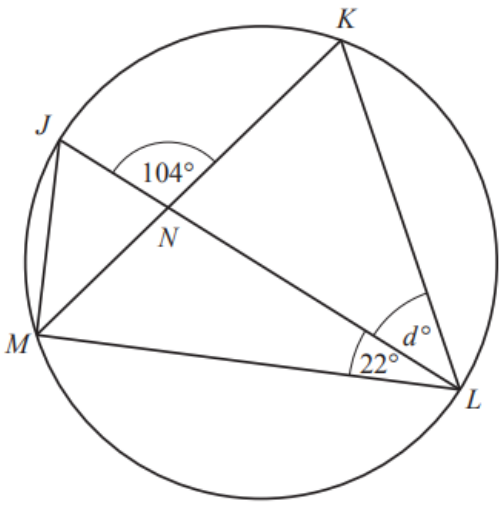

NOT TO SCALE

J, K, L and M are points on the circumference of a circle with diameter JL.
JL and KM intersect at N.
Angle $JNK = 104°$ and angle $MLJ = 22°$.

Work out the value of d.

$d =$ ..... [4]

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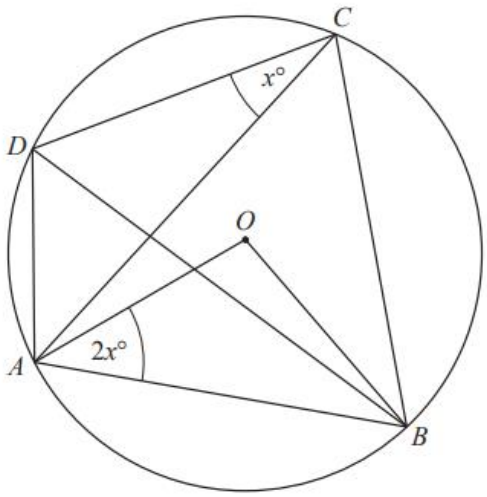

NOT TO SCALE

In the diagram, A, B, C and D lie on the circumference of a circle, centre O.
Angle $ACD = x°$ and angle $OAB = 2x°$.

Find an expression, in terms of x, in its simplest form for

(a) angle AOB,

Angle AOB = ... [1]

(b) angle ACB,

Angle ACB = ... [1]

(c) angle DAB.

Angle DAB = ... [2]