Module 2 Circle Theorems

1)

NOT TO SCALE

O is the centre of the circle.
DA is the tangent to the circle at *A* and *DB* is the tangent to the circle at *C*.
AOB is a straight line. Angle *COB* = 50°.
Calculate

(a) angle *CBO*,

Answer(a) Angle *CBO* =   [1]

(b) angle *DOC*.

Answer(b) Angle *DOC* =   [1]

2)
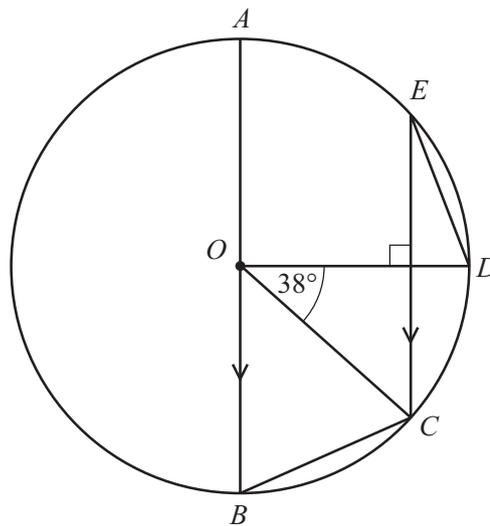
NOT TO SCALE

AB is the diameter of a circle, centre *O*. *C*, *D* and *E* lie on the circle.
EC is parallel to *AB* and perpendicular to *OD*. Angle *DOC* is 38°.

Work out

(a) angle *BOC* ,

*Answer(a)* Angle *BOC* =   [1]

**(b)** angle *CBO*,

Answer(b) Angle *CBO* =   [1]

(c) angle *EDO* .

Answer(c) Angle *EDO* =   [2]

3)

(b)
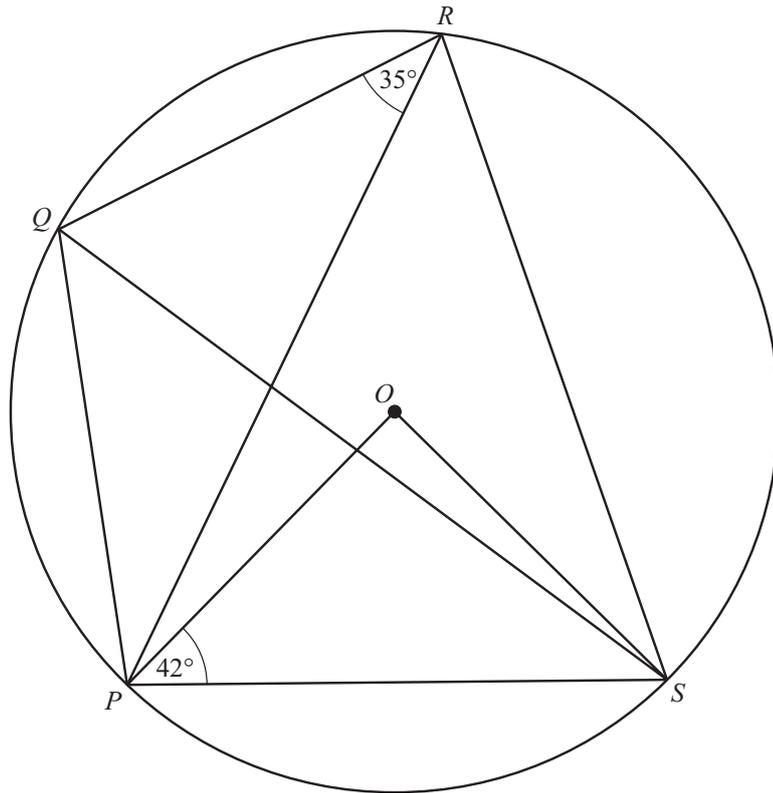
P, Q, R and *S* lie on a circle, centre *O.*
Angle *OPS* = 42° and angle *PRQ* = 35°.

Calculate

(i) angle *POS,*

Answer(b)(i) Angle *POS* =   [1]

(ii) angle *PRS,*

Answer(b)(ii) Angle *PRS* =   [1]

(iii) angle *SPQ,*

Answer(b)(iii) Angle *SPQ* =   [1]

(iv) angle *PSQ.*

Answer(b)(iv) Angle *PSQ* =   [1]

(c) The interior angle of a regular polygon is 8 times as large as the exterior angle.

Calculate the number of sides of the polygon.

Answer(c)   [3]

4)

NOT TO
SCALE
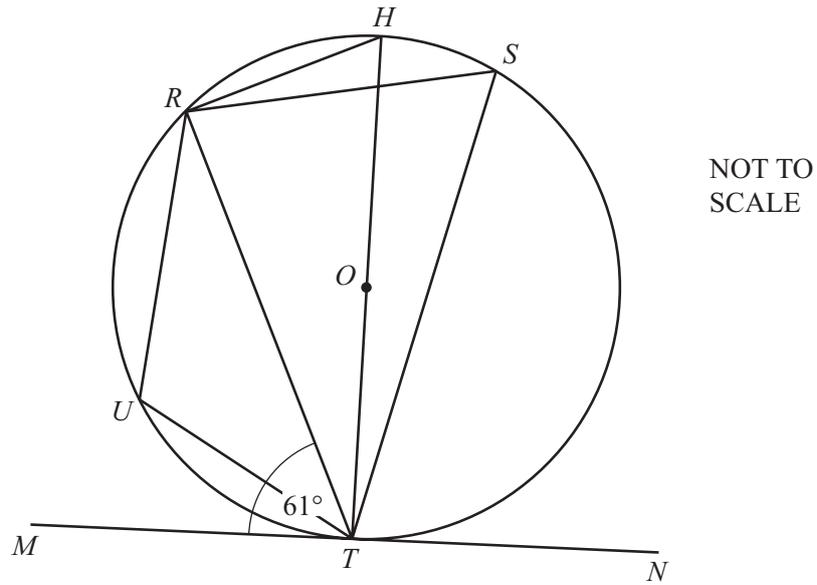
R, H, S, T and U lie on a circle, centre O.
HT is a diameter and MN is a tangent to the circle at T.
Angle $RTM = 61°$.

Find

(i) angle RTH,

Answer(b)(i) Angle $RTH =$ [1]

(ii) angle RHT,

Answer(b)(ii) Angle $RHT =$ [1]

(iii) angle RST,

Answer(b)(iii) Angle $RST =$ [1]

(iv) angle RUT.

Answer(b)(iv) Angle $RUT =$ [1]

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5)
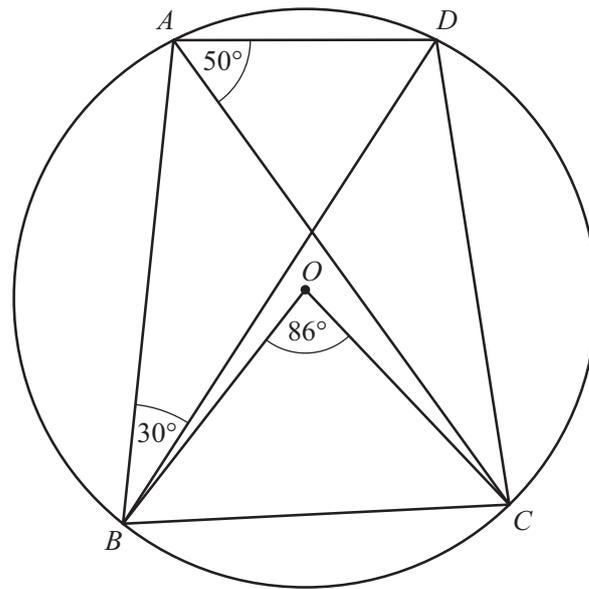
The points *A*, *B*, *C* and *D* lie on the circumference of the circle, centre *O*.

Angle *ABD* = 30°, angle *CAD* = 50° and angle *BOC* = 86°.

(a) Give the reason why angle *DBC* = 50°.

　Answer(a) .... [1]

(b) Find

　(i) angle *ADC*,

Answer(b)(i) Angle *ADC* = ... [1]

　(ii) angle *BDC*,

Answer(b)(ii) Angle *BDC* = ... [1]

　(iii) angle *OBD*.

Answer(b)(iii) Angle *OBD* = ... [2]

6)

NOT TO SCALE
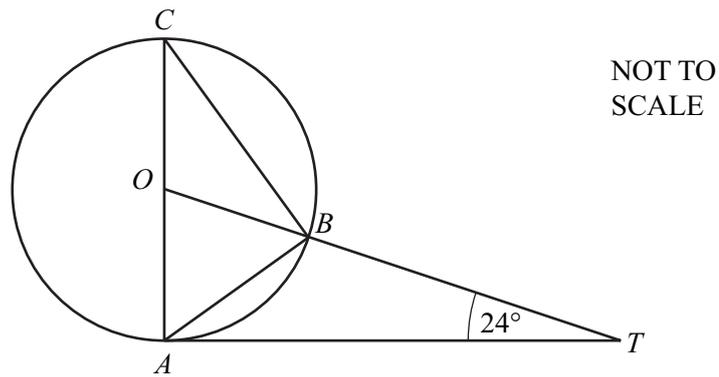
A, *B* and *C* are points on a circle, centre *O*.
TA is a tangent to the circle at *A* and *OBT* is a straight line.
AC is a diameter and angle *OTA* = 24°.

Calculate

(a) angle *AOT*,

Answer(a) Angle *AOT* =   [2]

(b) angle *ACB*,

Answer(b) Angle *ACB* =   [1]

(c) angle *ABT*.

Answer(c) Angle *ABT* =   [2]

7)
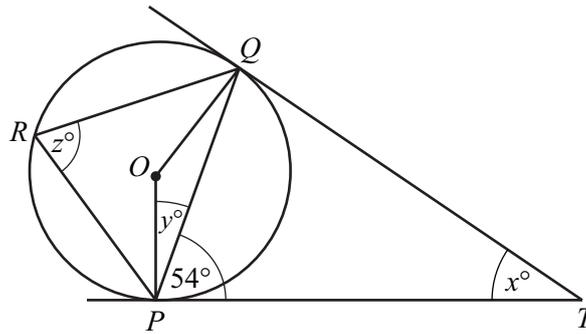
NOT TO
SCALE

The points *P*, *Q* and *R* lie on a circle, centre *O*.
TP and *TQ* are tangents to the circle.
Angle *TPQ* = 54°.

Calculate the value of

(a) *x*,

Answer(a) x = ... [1]

(b) *y*,

Answer(b) y = ... [1]

(c) *z*.

Answer(c) z = ... [2]

8)
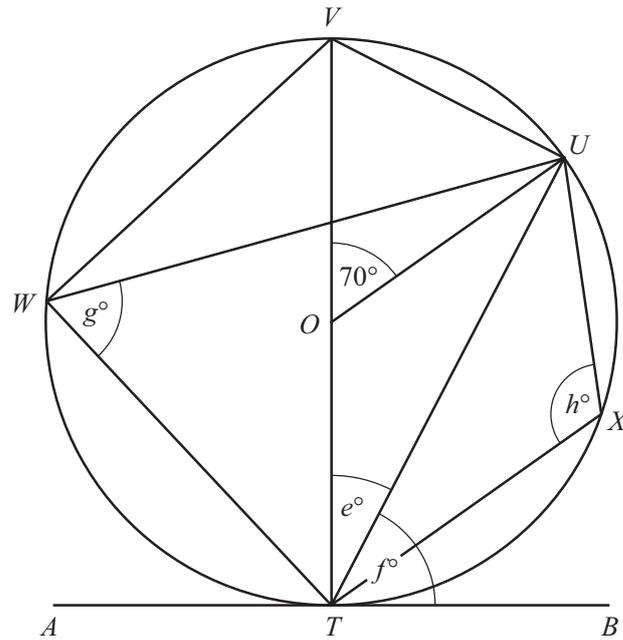
NOT TO SCALE

The diagram shows a circle, centre O.
VT is a diameter and ATB is a tangent to the circle at T.
U, V, W and X lie on the circle and angle $VOU = 70°$.

Calculate the value of

(a) e,

Answer(a) e =   [1]

(b) f,

Answer(b) f =   [1]

(c) g,

Answer(c) g =   [1]

**(d)** h.

Answer(d) h =   [1]

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