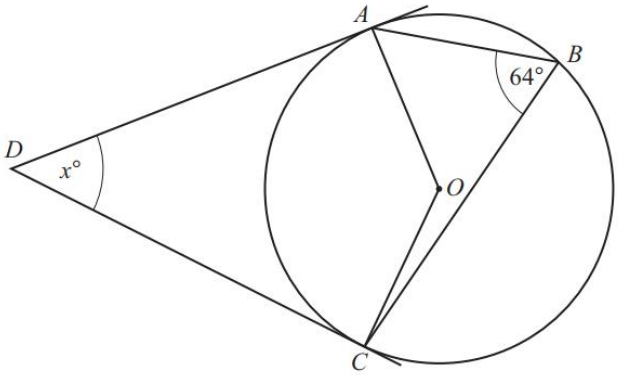
1. 0580_w24_qp_22

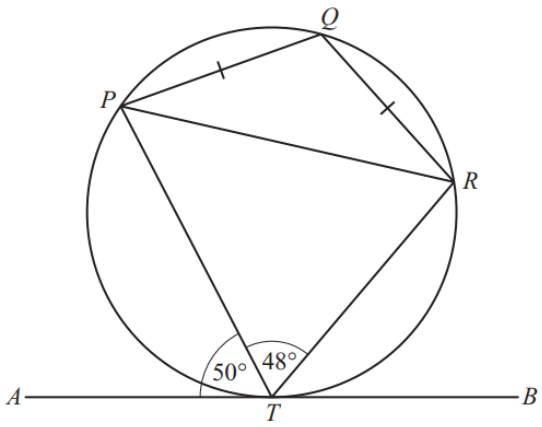


NOT TO SCALE

A, B and C are points on the circumference of a circle with centre O.
DA and DC are tangents to the circle.
Angle $ABC = 64°$.

Work out the value of x.

2. 0580_s24_qp_23 no 14



NOT TO SCALE

P, Q, R and T are points on the circle.
AB is a tangent to the circle at T.
Angle $ATP = 50°$, angle $PTR = 48°$ and $PQ = QR$.

(a) Find angle PRT.

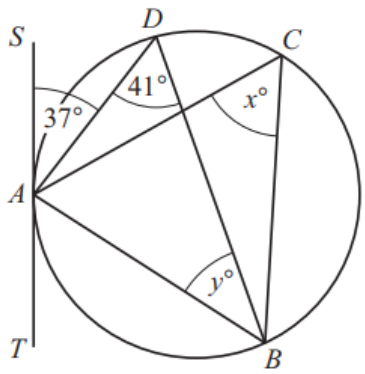
Angle PRT = ... [1]

(b) Find angle QPR.

Angle QPR = ... [2]

3. 0580_w24_qp_23

(a)



NOT TO SCALE

A, B, C and D lie on the circle.
TAS is a tangent to the circle at A.

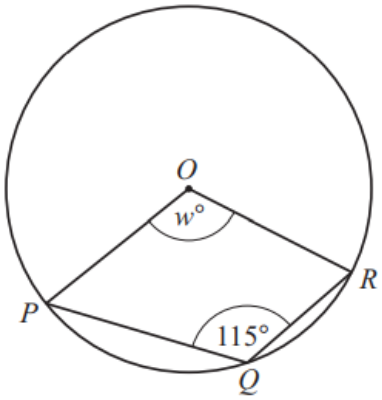
(i) Find the value of x.

$x =$ ..... [1]

(ii) Find the value of y.

$y =$ ..... [1]

(b)



NOT TO SCALE

P, Q and R lie on the circle, centre O.

Find the value of w.

$w =$ ..... [2]

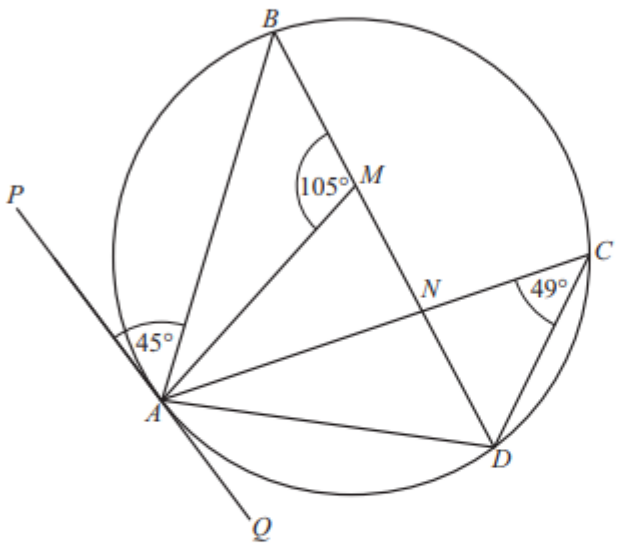
4. 0580_w24_qp_42

(a) The angles of a quadrilateral are $w°$, $x°$, $y°$ and $z°$.
The ratio $w : (x+y+z) = 3 : 5$.

Find the value of w.

$w =$ ..... [2]

(b)



NOT TO SCALE

A, B, C and D are points on a circle.
PQ is the tangent to the circle at A.
$BMND$ is a straight line.
Angle $ACD = 49°$, angle $AMB = 105°$ and angle $PAB = 45°$.

(i) Find angle BAM.

Angle $BAM =$ ..... [2]

(ii) **(a)** Find angle BAD.

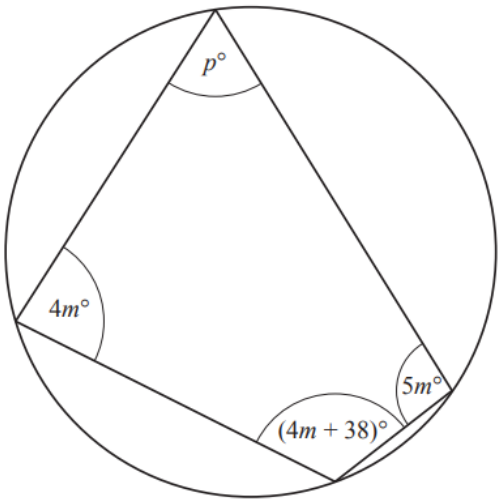
Angle $BAD =$ ..... [2]

(b) Give a geometrical reason why BD is **not** the diameter of the circle.

.....

..... [1]

5. 0580_s24_qp_21 no 13



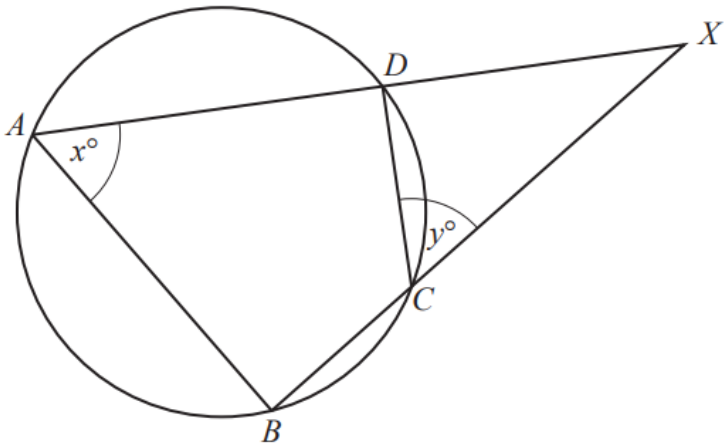
NOT TO SCALE

The diagram shows a cyclic quadrilateral.

Find the value of p.

$p =$ ..... [3]

6. 0580_m24_qp_42. No 2



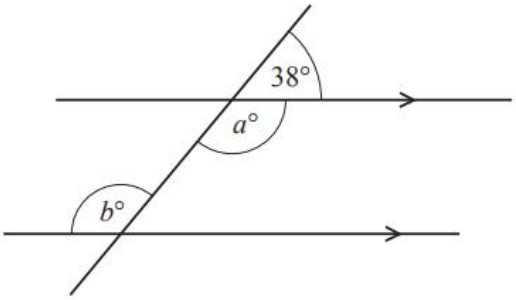
NOT TO SCALE

A, B, C and D are points on a circle.
ADX and BCX are straight lines.
Angle $BAD = x°$ and angle $DCX = y°$.

(a) Explain why $x = y$.
Give a geometrical reason for each statement you make.

7. 0580_s24_qp_42 no 2

(a)



NOT TO SCALE

The diagram shows a straight line intersecting two parallel lines.

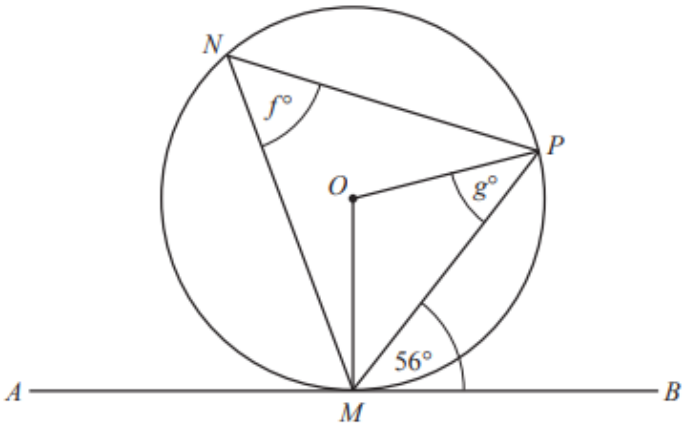
Find the value of a and the value of b.

$a =$ .....

$b =$ ..... [2]

(b) Calculate the interior angle of a regular 12-sided polygon.

(c)



NOT TO SCALE

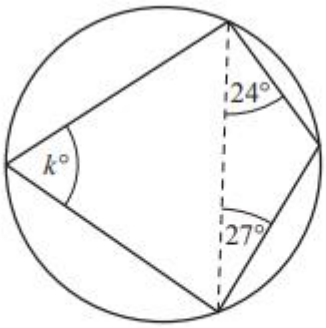
The diagram shows a circle, centre O.
The points M, N and P lie on the circumference of the circle.
AMB is a tangent to the circle at M.

Find the value of f and the value of g.

$f =$ .....

$g =$ ..... [3]

(d)

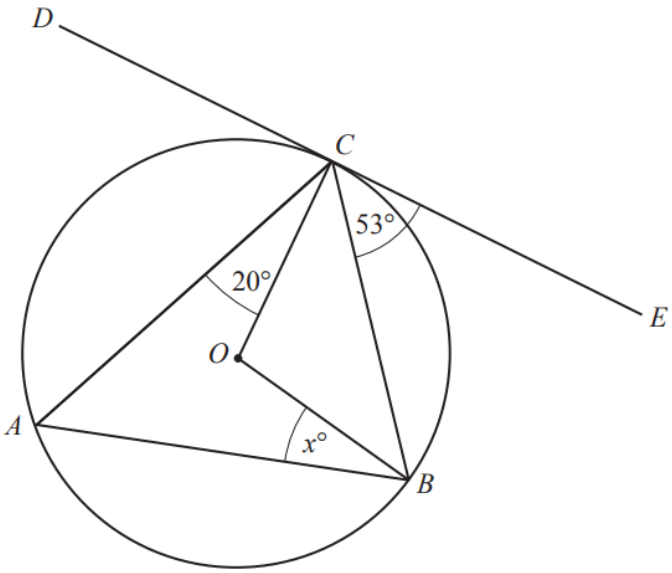


NOT TO SCALE

The diagram shows a cyclic quadrilateral.

Find the value of k.

8. 0580_w23_qp_21 no 17



NOT TO SCALE

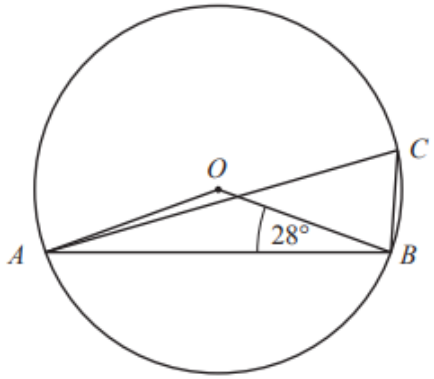
A, B and C are points on the circumference of a circle, centre O.
Tangent DE touches the circle at C.
Angle $BCE = 53°$ and angle $ACO = 20°$.

Find the value of x.

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

9. 0580_w23_qp_22 no 17

(a)



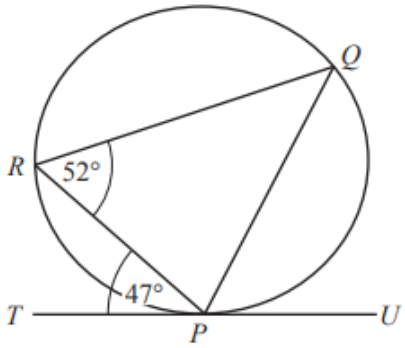
NOT TO SCALE

A, B and C are points on a circle, centre O.
Angle $OBA = 28°$.

Find angle ACB.

Angle ACB = ... [2]

(b)

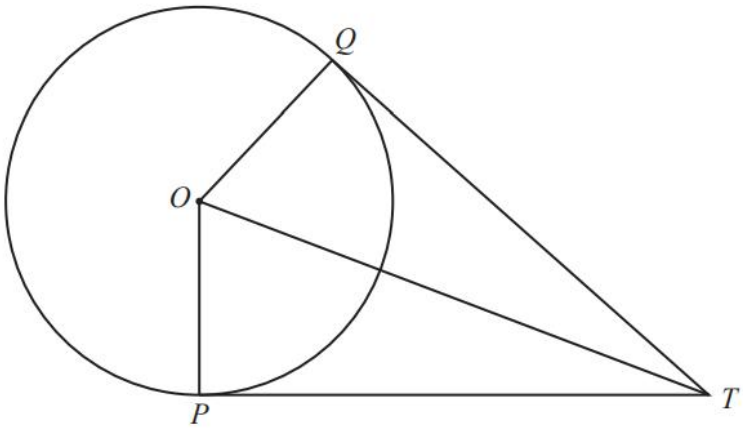


NOT TO SCALE

P, Q and R are points on a circle.
TU is a tangent to the circle at P.
Angle $TPR = 47°$ and angle $PRQ = 52°$.

Find angle RPQ.

10. 0580_w23_qp_42 no 10b



NOT TO SCALE

P and Q are points on the circle with centre O.
TP and TQ are tangents to the circle from the point T.

Complete the following statements and reasons.

In triangles OPT and OQT

OP = ... because each is a radius of the circle

OT is a common side

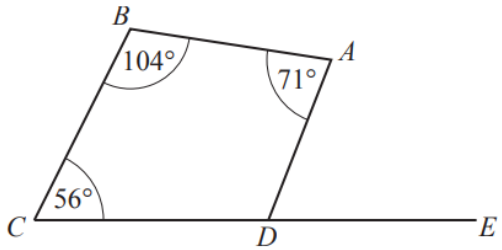
Angle OPT = angle ..... = 90° because .....

Triangles OPT and OQT are congruent using the criterion .....

This proves that the tangents TP and TQ are .....

[5]

11. 0580_s23_qp_21 no 1



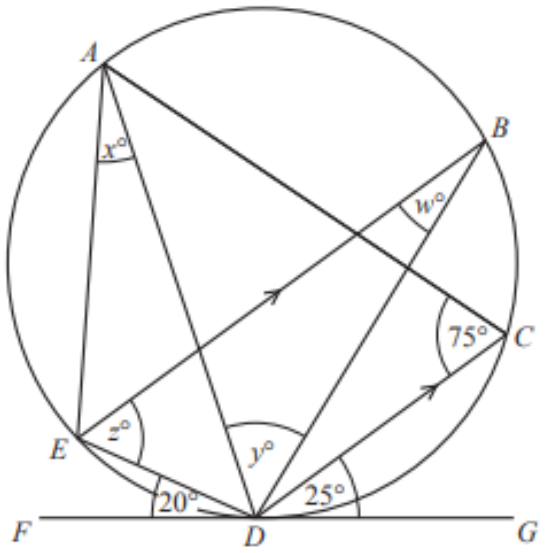
NOT TO SCALE

CDE is a straight line.

Find angle ADE.

..... [2]

12. 0580_w23_qp_43 no 4b



NOT TO SCALE

The points A, B, C, D and E lie on a circle.
FG is a tangent to the circle at D.
EB is parallel to DC.

Find the value of each of w, x, y and z.

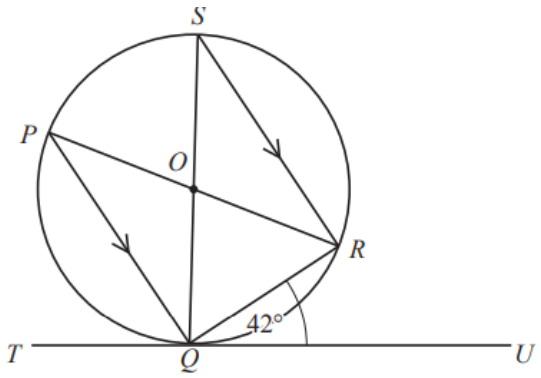
$w =$ .....

$x =$ .....

$y =$ .....

$z =$ ..... [5]

13. 0580_s23_qp_21 no 12 b



NOT TO SCALE

P, Q, R and S are points on the circle and TQU is a tangent to the circle at Q.
PR and SQ intersect at the centre of the circle, O, and PQ is parallel to SR.
Angle $RQU = 42°$.

Calculate

(i) angle QSR

Angle QSR = ... [1]

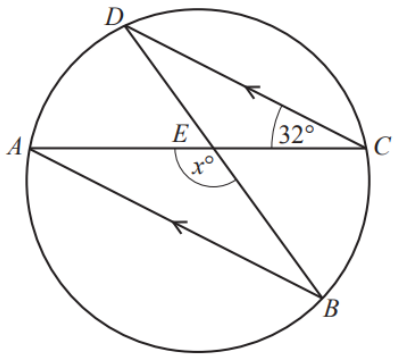
(ii) angle PQS

Angle PQS = ... [1]

(iii) angle POS.

Angle POS = ... [1]

14. 0580_s23_qp_22 no 13



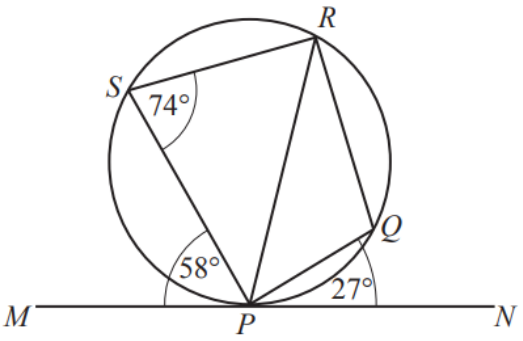
NOT TO SCALE

A, B, C and D are points on a circle.
AB is parallel to DC and angle $ACD = 32°$.
Chords AC and DB intersect at E.

Find the value of x.

x = ... [2]

15. 0580_s23_qp_43no 4b



NOT TO SCALE

P, Q, R and S lie on a circle.
MPN is a tangent to the circle at P.
Angle $MPS = 58°$, angle $PSR = 74°$ and angle $QPN = 27°$.

(i) Find angle PRS.

Angle PRS = ... [1]

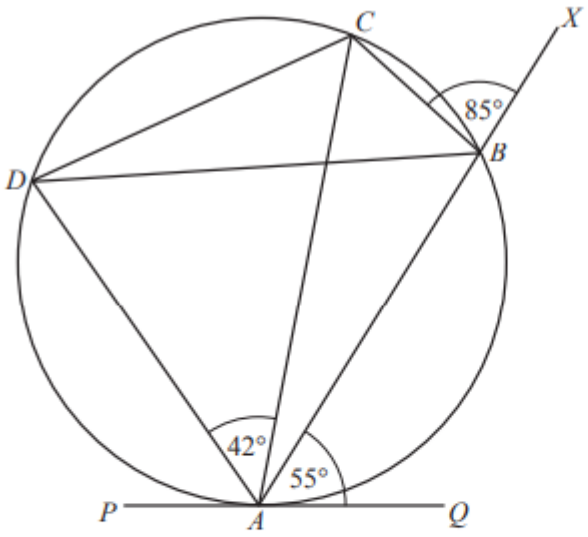
(ii) Find angle PQR.

Angle PQR = ... [1]

(iii) Find angle RPQ.

Angle RPQ = ... [2]

16. 0580_m23_qp_22 no 17



NOT TO SCALE

ABCD is a cyclic quadrilateral, *ABX* is a straight line and *PQ* is a tangent to the circle at *A*.
Angle *CBX* = 85°, angle *BAQ* = 55° and angle *CAD* = 42°.

Find

(a) angle *CBD*

Angle *CBD* = ... [1]

(b) angle *ACB*

Angle *ACB* = ... [1]

(c) angle *ADC*

Angle *ADC* = ... [1]

(d) angle *BCD*

Angle *BCD* = ... [2]

(e) angle *PAD*.

Angle *PAD* = ... [1]