

Angles

(Circles, Quadrilaterals, Polygons & Triangles)

Question Paper 10

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Geometry
Sub-Topic	Angles (Circles, Quadrilaterals, Polygons & Triangles)
Booklet	Question Paper 10

Time Allowed: 56 minutes

Score: /46

Percentage: /100

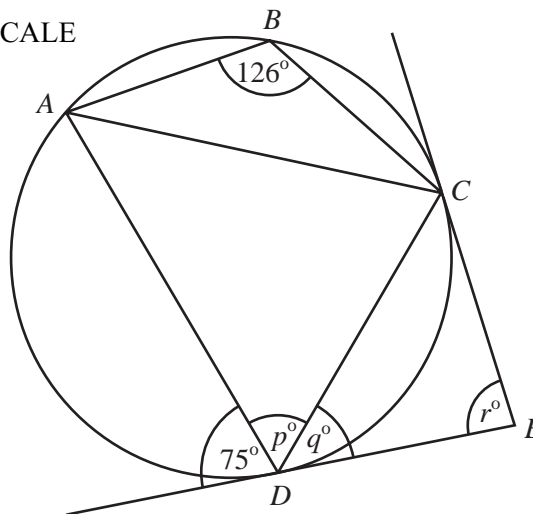
Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1

$ABCD$ is a cyclic quadrilateral.
The tangents at C and D meet at E .
Calculate the values of p , q and r .

NOT TO SCALE

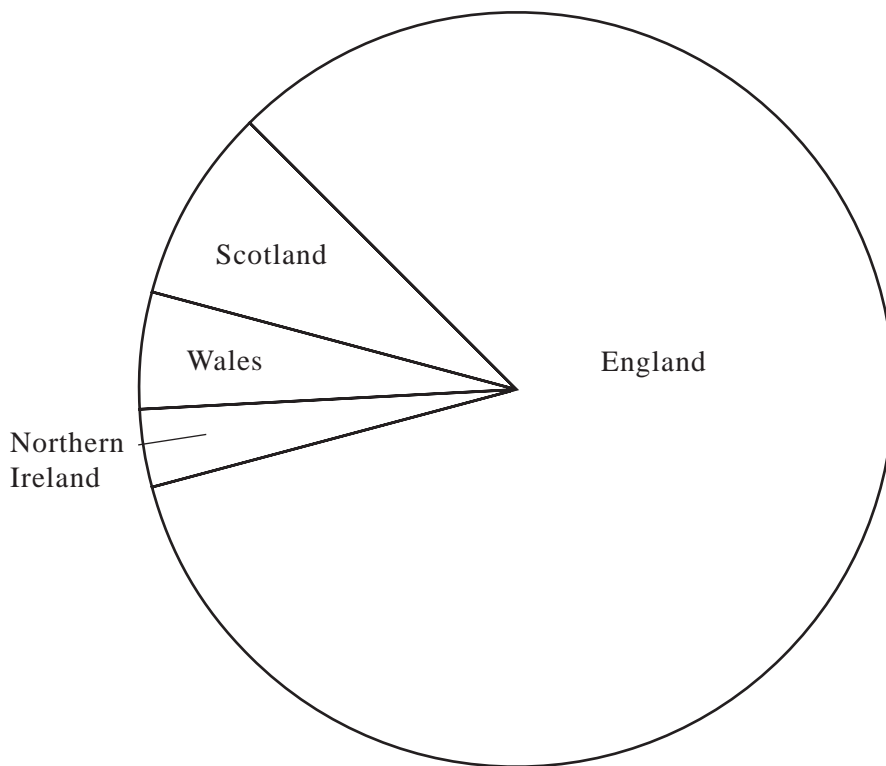


Answer $p =$ [1]

$q =$ [1]

$r =$ [2]

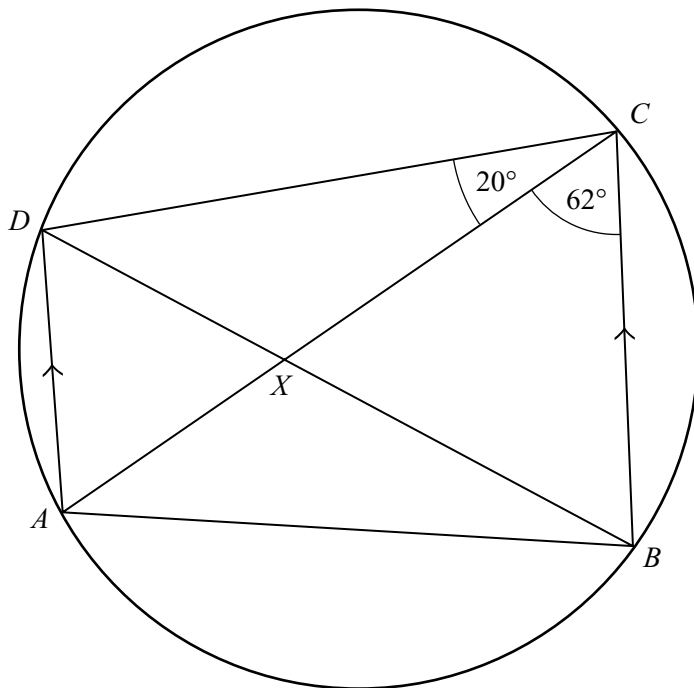
- 2 The populations of the four countries of the United Kingdom, in the year 2000, are shown on the pie chart below.



Taking measurements from the pie chart, complete the table.

Country	Population (millions)
England	
Scotland	
Wales	
Northern Ireland	2

3



NOT TO SCALE

$ABCD$ is a cyclic quadrilateral.
 AD is parallel to BC . The diagonals DB and AC meet at X .
 Angle $ACB = 62^\circ$ and angle $ACD = 20^\circ$.
 Calculate

(a) angle DBA ,

Answer (a) Angle $DBA = \dots\dots\dots$ [1]

(b) angle DAB ,

Answer (b) Angle $DAB = \dots\dots\dots$ [1]

(c) angle DAC ,

Answer (c) Angle $DAC = \dots\dots\dots$ [1]

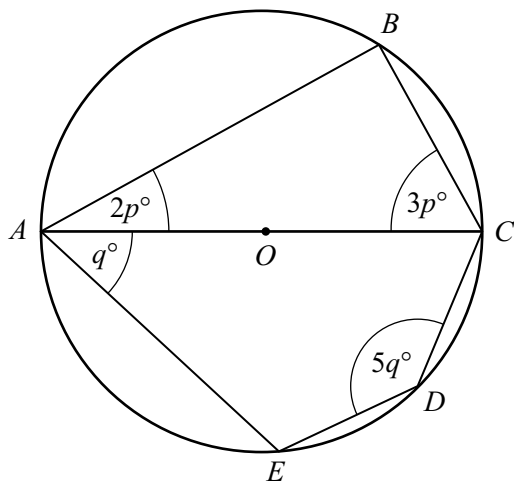
(d) angle AXB ,

Answer (d) Angle $AXB = \dots\dots\dots$ [1]

(e) angle CDB .

Answer (e) Angle $CDB = \dots\dots\dots$ [1]

4



NOT TO
SCALE

A , B , C , D and E lie on a circle, centre O . AOC is a diameter.
Find the value of

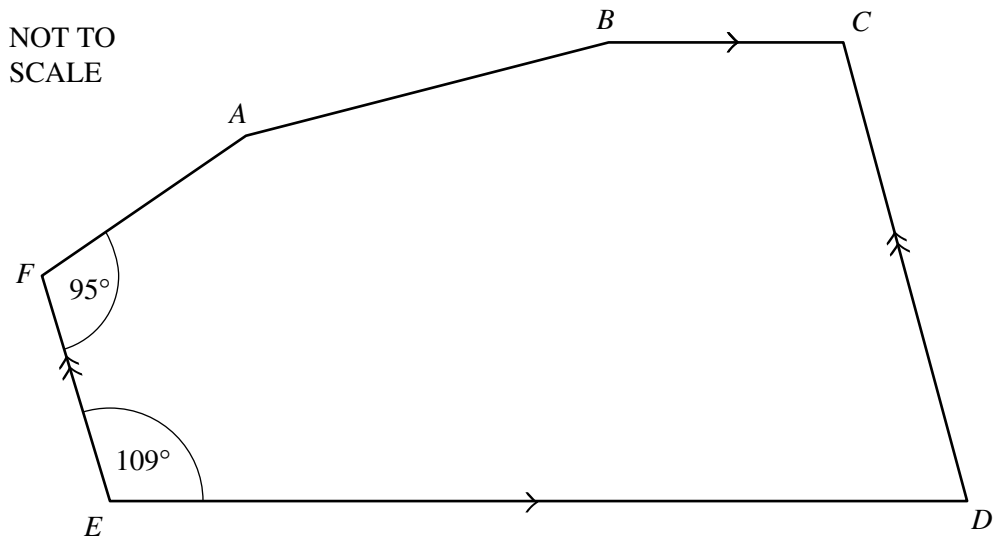
(a) p ,

Answer (a) $p = \dots\dots\dots$ [2]

(b) q .

Answer (b) $q = \dots\dots\dots$ [2]

5



In the hexagon $ABCDEF$, BC is parallel to ED and DC is parallel to EF .

Angle $DEF = 109^\circ$ and angle $EFA = 95^\circ$.

Angle FAB is equal to angle ABC .

Find the size of

(a) angle EDC ,

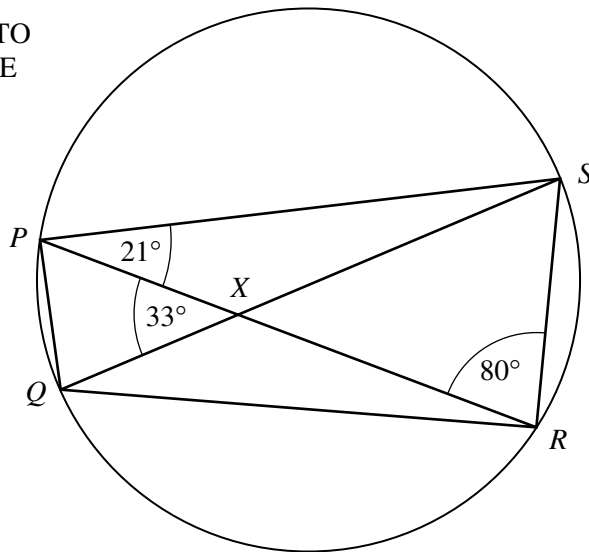
Answer (a) Angle $EDC = \dots\dots\dots$ [1]

(b) angle FAB .

Answer (b) Angle $FAB = \dots\dots\dots$ [2]

6

NOT TO SCALE



PQRS is a cyclic quadrilateral. The diagonals *PR* and *QS* intersect at *X*.
 Angle *SPR* = 21° , angle *PRS* = 80° and angle *PXQ* = 33° .
 Calculate

(a) angle *PQS*,

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

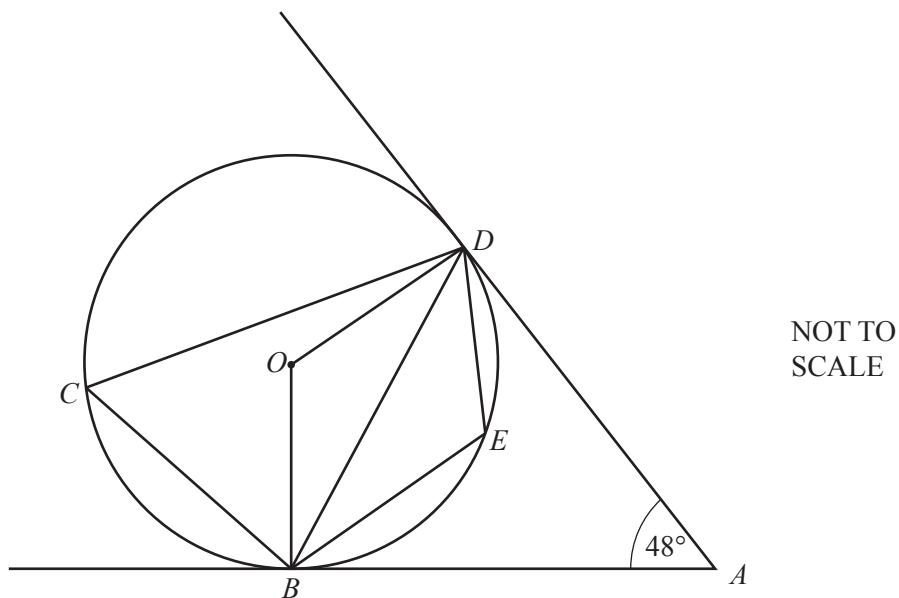
(b) angle *QPR*,

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

(c) angle *PSQ*.

Answer (c) Angle *PSQ* = [1]

7



In the diagram, B, C, D and E lie on the circle, centre O .
 AB and AD are tangents to the circle.
 Angle $BAD = 48^\circ$.

(a) Find

(i) angle ABD ,

Answer(a)(i) Angle $ABD = \dots\dots\dots$ [1]

(ii) angle OBD ,

Answer(a)(ii) Angle $OBD = \dots\dots\dots$ [1]

(iii) angle BCD ,

Answer(a)(iii) Angle $BCD = \dots\dots\dots$ [2]

(iv) angle BED .

Answer(a)(iv) Angle $BED = \dots\dots\dots$ [1]

(b) The radius of the circle is 15 cm.

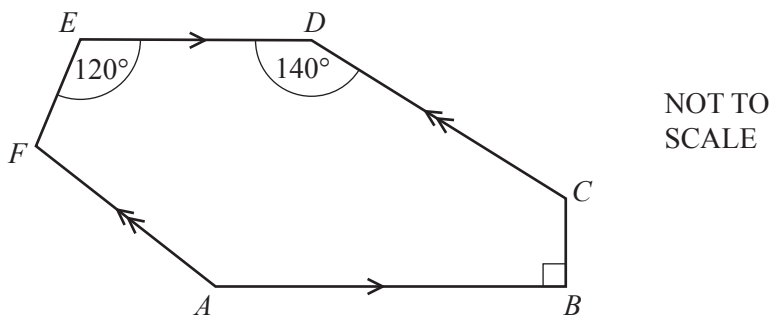
Calculate the area of triangle BOD .

Answer(b) $\dots\dots\dots$ cm² [2]

(c) Give a reason why $ABOD$ is a cyclic quadrilateral.

Answer(c) $\dots\dots\dots$
 $\dots\dots\dots$ [1]

8 (a)

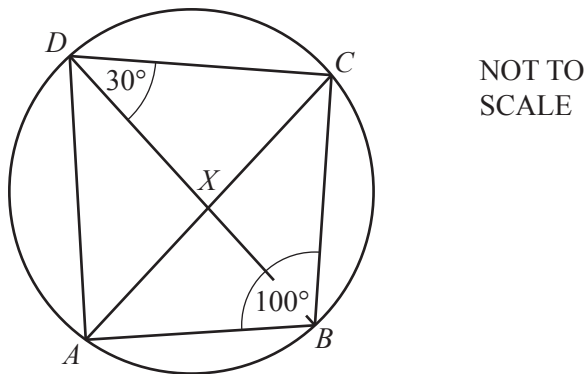


In the hexagon $ABCDEF$, AB is parallel to ED and AF is parallel to CD .
 Angle $ABC = 90^\circ$, angle $CDE = 140^\circ$ and angle $DEF = 120^\circ$.

Calculate angle EFA .

Answer(a) Angle $EFA = \dots\dots\dots$ [4]

(b)



In the cyclic quadrilateral $ABCD$, angle $ABC = 100^\circ$ and angle $BDC = 30^\circ$.
 The diagonals intersect at X .

(i) Calculate angle ACB .

Answer(b)(i) Angle $ACB = \dots\dots\dots$ [2]

(ii) Angle $BXC = 89^\circ$.

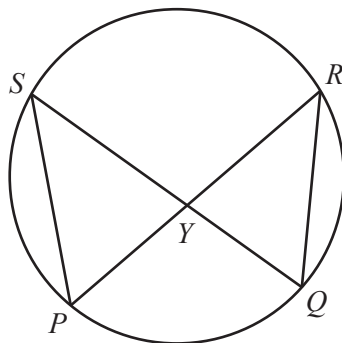
Calculate angle CAD .

Answer(b)(ii) Angle $CAD = \dots\dots\dots$ [2]

(iii) Complete the statement.

Triangles AXD and BXC are $\dots\dots\dots$ [1]

(c)



NOT TO SCALE

P, Q, R and S lie on a circle.

PR and QS intersect at Y .

$PS = 11$ cm, $QR = 10$ cm and the area of triangle $QRY = 23$ cm².

Calculate the area of triangle PYS .

Answer(c) cm² [2]

(d) A regular polygon has n sides.
Each exterior angle is equal to $\frac{n}{10}$ degrees.

(i) Find the value of n .

Answer(d)(i) $n =$ [3]

(ii) Find the size of an interior angle of this polygon.

Answer(d)(ii) [2]