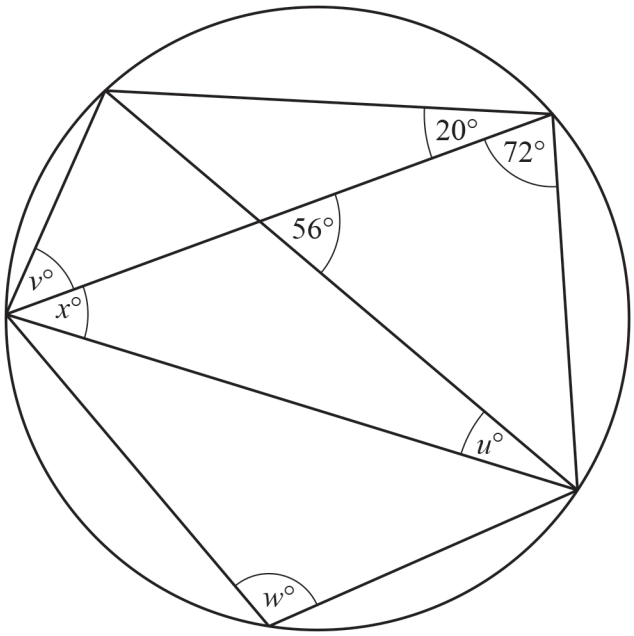
1 Draw the lines of symmetry of the rectangle.

[2]

[Total: 2]

2



NOT TO SCALE

The diagram shows a circle and eight chords.

Calculate the values of u, v, w and x.

u = ...

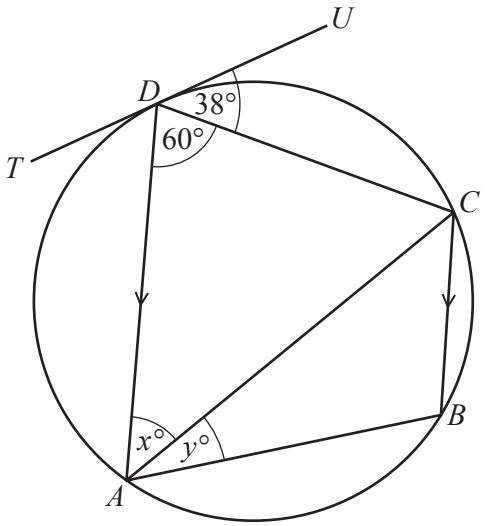
v = ...

w = ...

x = ... [4]

[Total: 4]

3



NOT TO SCALE

A, B, C and D are points on a circle.
TU is a tangent to the circle at D.
DA is parallel to CB.

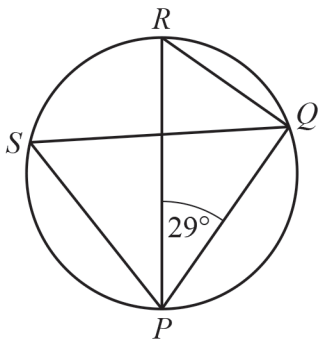
Find the value of x and the value of y.

$x =$ .....

$y =$ ..... [3]

[Total: 3]

4



NOT TO SCALE

The points P, Q, R and S lie on a circle with diameter PR.

Work out the size of angle PSQ, giving a geometrical reason for each step of your working.

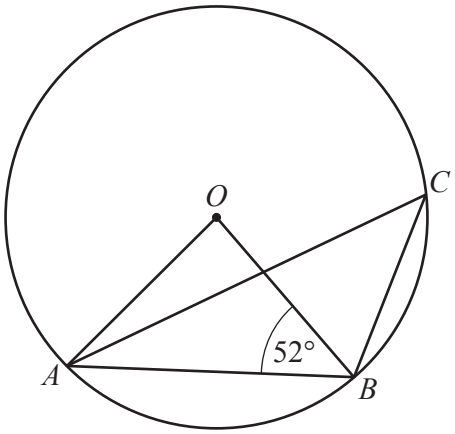
.....

.....

..... [3]

[Total: 3]

5



NOT TO SCALE

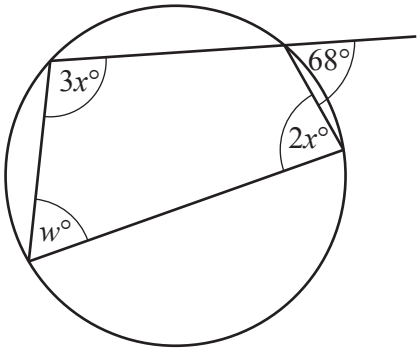
A, B and C lie on a circle, centre O.
Angle $OBA = 52°$.

Calculate angle ACB.

Angle ACB = ... [2]

[Total: 2]

6



NOT TO
SCALE

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

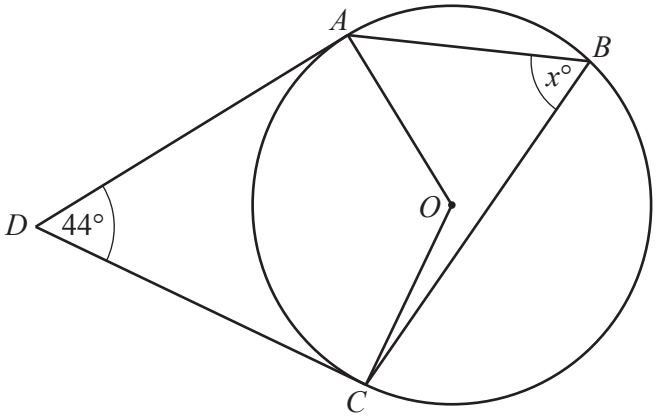
Find the value of w and the value of x.

$w =$ .....

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

[Total: 3]

7



NOT TO SCALE

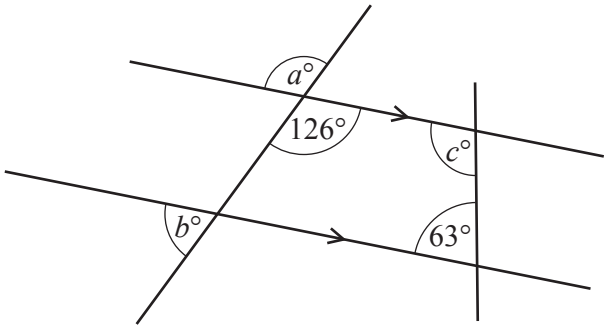
A, B and C are points on a circle, centre O.
DA and DC are tangents.
Angle $ADC = 44°$.

Work out the value of x.

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

[Total: 3]

8



NOT TO SCALE

The diagram shows two straight lines intersecting two parallel lines.

Find the values of a, b and c.

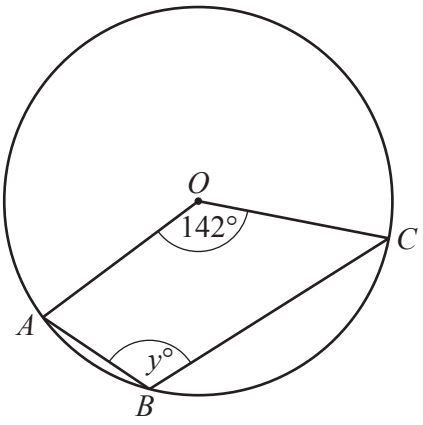
$a =$ .....

$b =$ .....

$c =$ ..... [3]

[Total: 3]

9



NOT TO SCALE

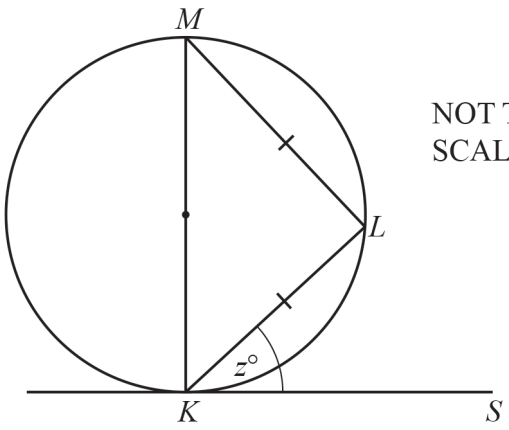
Points A, B and C lie on a circle, centre O.
Angle $AOC = 142°$.

Find the value of y.

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

[Total: 2]

10



NOT TO SCALE

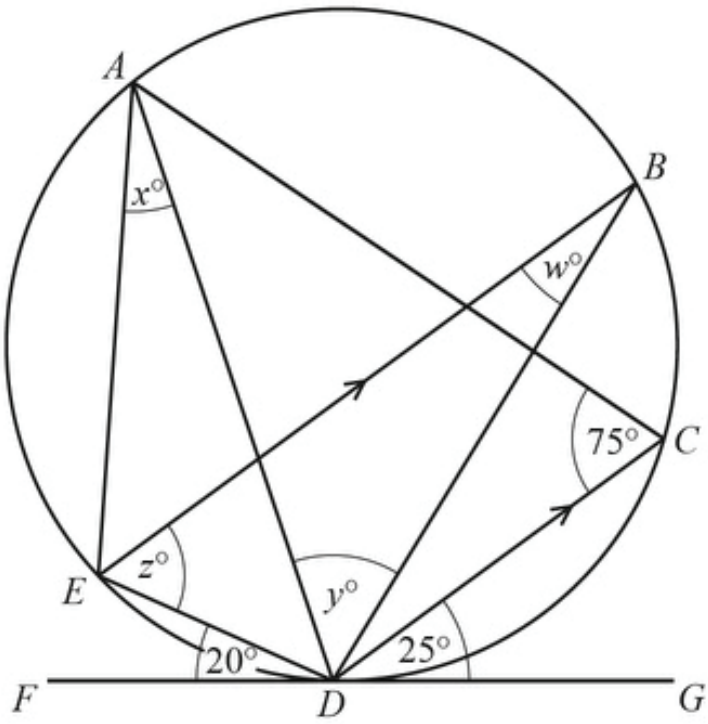
K, L and M are points on the circle.
KS is a tangent to the circle at K.
KM is a diameter and triangle KLM is isosceles.

Find the value of z.

$z =$ ..... [2]

[Total: 2]

11



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]

Mark Scheme

Question	Answer	Marks	AO Element	Notes	Guidance
1	Correct lines drawn	**2**		**B1** for one correct with no incorrect lines	
2	[u =] 20 [v =] 52 [w =] 108 [x =] 36	**4**		**B1** for each	
3	[x =] 38 [y =] 22	**3**		**B1** for [x =] 38 and **B2** for [y =] 22 or **M1** for angle ACB = *their x* or angle BAD = 60 or angle CBA = 120	
4	**B1** for PQR = 90 angle in semi-circle **B1** for PRQ = 61 angle sum of triangle [= 180] **B1** for PSQ = 61 angle in same segment	**3**		If 0 scored **SC1** for PSQ = PRQ [= 61] soi	
5	38	**2**		**B1** for AOB = 76	

Question	Answer	Marks	AO Element	Notes	Guidance
6	[w =] 68 [x =] 36	**3**		**B1** for 68 **B2** for 36 or **M1** for $3x + 2x + 68 + 112 = 360$ or better	
7	68	**3**		**M1** for correctly identifying 90° angle soi or *DAC* / *DCA* = 68 **M1** for [obtuse angle] *AOC* identified as $2x$ soi or x = their *DAC* / *DCA*	
8	126 54 117	**3**		**B1** for each	
9	109	**2**		**B1** for 218 or 71 in correct places or correctly labelled	
10	45	**2**		**B1** for angles at *M* or *K* = 45 or angle at *L* = 90	
11	$w = 20$ $x = 20$ $y = 60$ $z = 45$	**5**		**B1** for w **B1FT** for x = *their* w **B2FT** for $y = 80 -$ *their* w or **B1** for angle *BDC* = 20 FT *their* w or angle *ADE* = 55 or angle *CAD* = 25 **B1FT** for $z = 25 +$ *their* w or $105 -$ *their* y	[Total: 27]