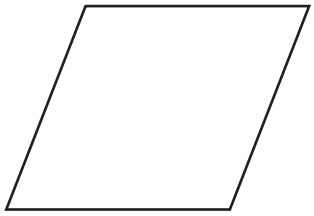
1



The diagram shows a rhombus.

(a) Write down the order of rotational symmetry.

..... [1]

(b) On the diagram, draw all the lines of symmetry. [2]

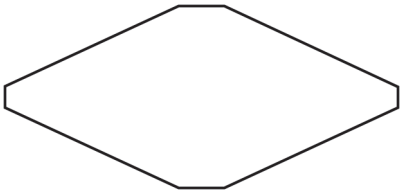
[Total: 3]

2 Draw the lines of symmetry of the rectangle.

[2]

[Total: 2]

3

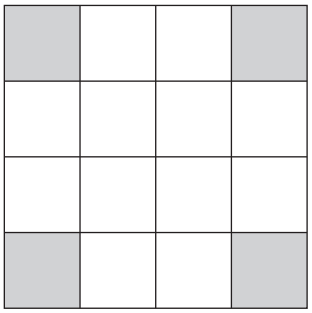


Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 1]

4

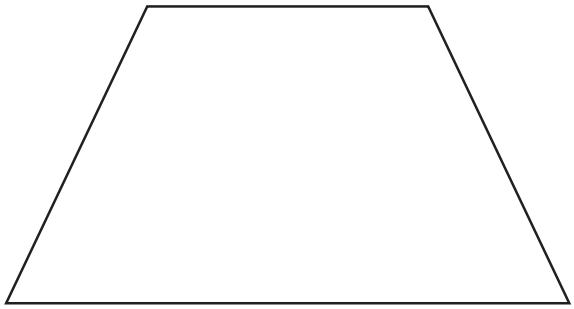


Write down the order of rotational symmetry of this diagram.

..... [1]

[Total: 1]

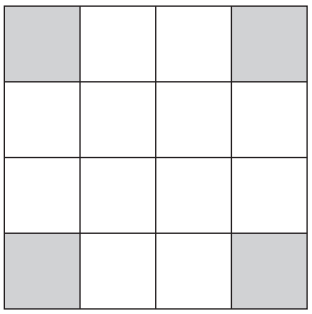
5



Draw the line of symmetry on this shape. [1]

[Total: 1]

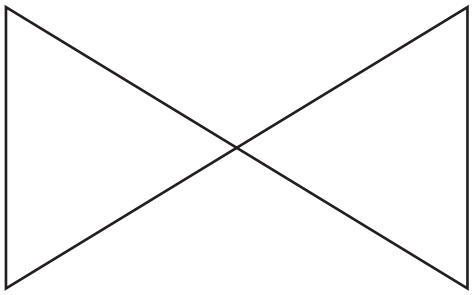
6



On the diagram, draw all the lines of symmetry. [2]

[Total: 2]

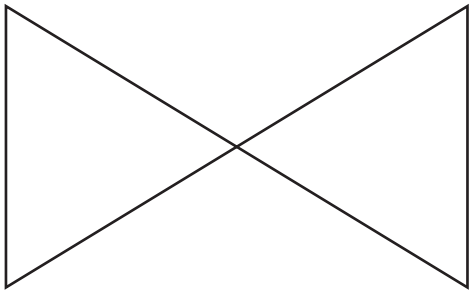
7



On the diagram, draw all the lines of symmetry. [2]

[Total: 2]

8

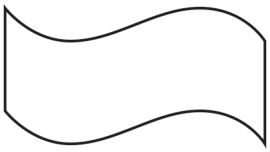


Complete this statement.

The diagram has rotational symmetry of order ..... [1]

[Total: 1]

9

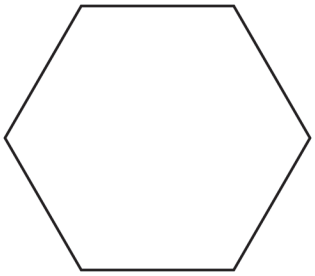


Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 1]

10 The diagram shows a regular polygon.



(a) Write down the mathematical name for this shape.

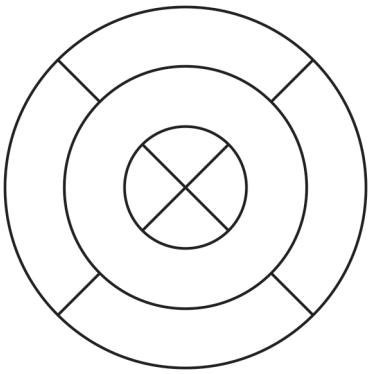
..... [1]

(b) Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 2]

11



For this diagram, write down

(a) the number of lines of symmetry,

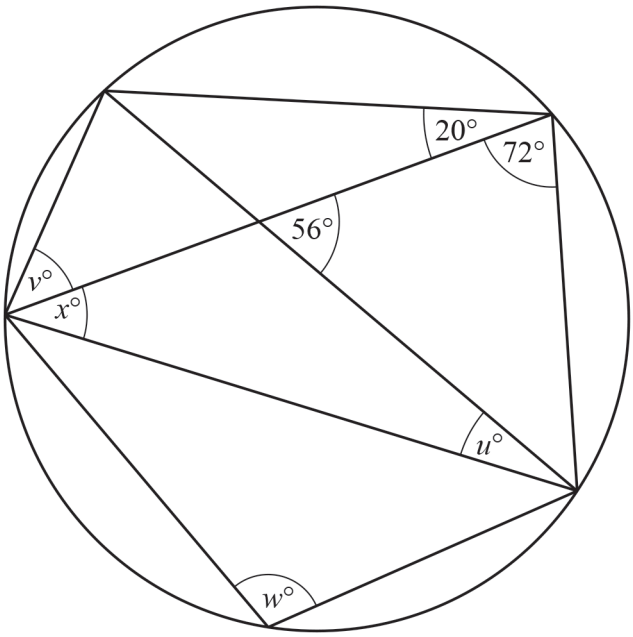
..... [1]

(b) the order of rotational symmetry.

..... [1]

[Total: 2]

12



NOT TO SCALE

The diagram shows a circle and eight chords.

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

u = ...

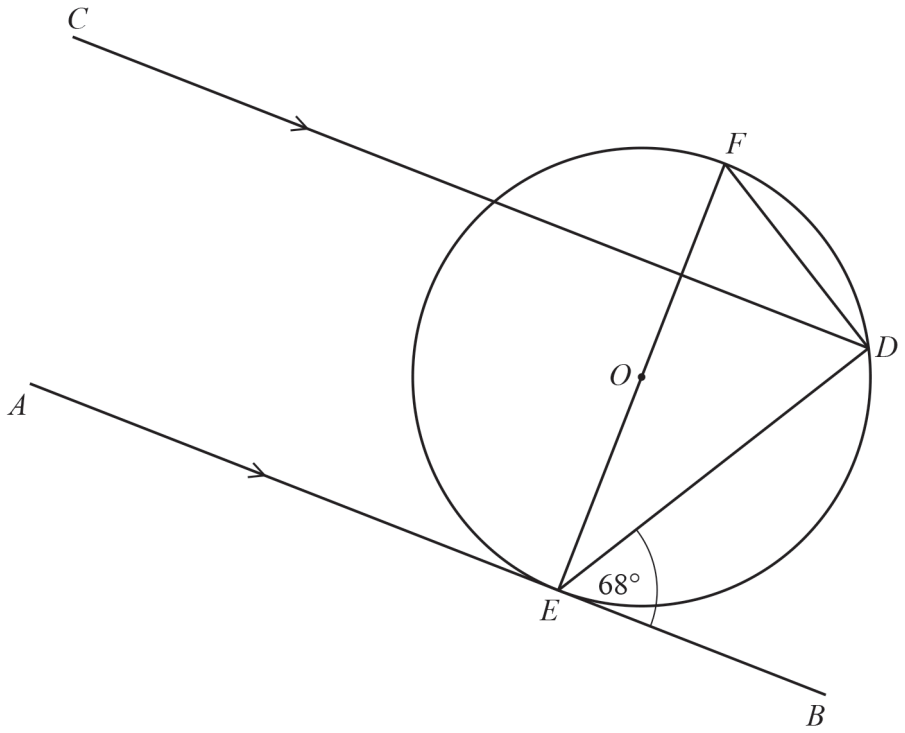
v = ...

w = ...

x = ... [4]

[Total: 4]

13



In the diagram, D, E and F are points on a circle, centre O.
AB is a tangent to the circle at E.
Lines AB and CD are parallel and angle $BED = 68°$.

(a) Find angle CDE and give a reason for your answer.

Angle CDE = ... because .....

..... [2]

(b) Find angle DEF and give a reason for your answer.

Angle DEF = ... because .....

..... [2]

(c) Work out angle EFD.
Write down the two further geometrical properties needed to find angle EFD.

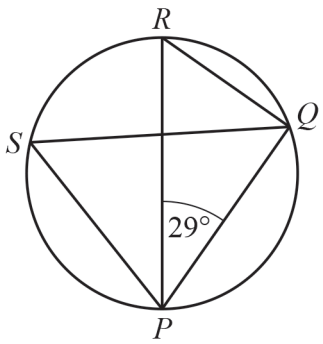
Angle EFD = ...

1. .....

2. ..... [3]

[Total: 7]

14



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.

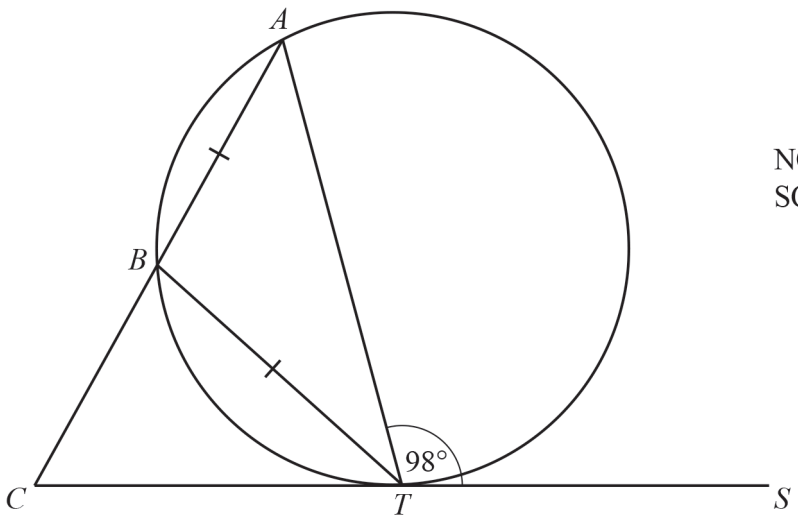
.....

.....

..... [3]

[Total: 3]

15



NOT TO SCALE

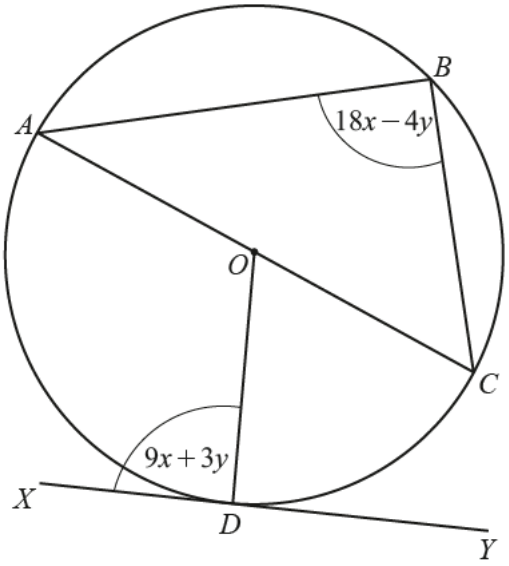
The points A, B and T lie on a circle and CTS is a tangent to the circle at T.
ABC is a straight line and $AB = BT$.
Angle $ATS = 98°$.

Work out the size of angle ACT.

Angle ACT = ... [4]

[Total: 4]

16 In this question, all angles are in degrees.



NOT TO SCALE

A, B, C and D lie on a circle, centre O, diameter AC.
XY is a tangent to the circle at D.

(a) Use the information in the diagram to complete these two simultaneous equations.

$9x + 3y =$ .....

$18x - 4y =$ ..... [2]

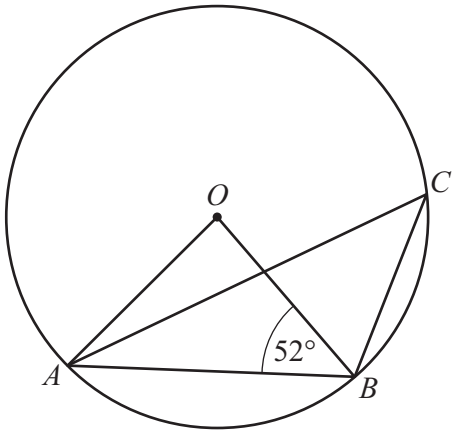
(b) Solve your simultaneous equations.
You must show all your working.

$x =$ .....

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

[Total: 5]

17



NOT TO SCALE

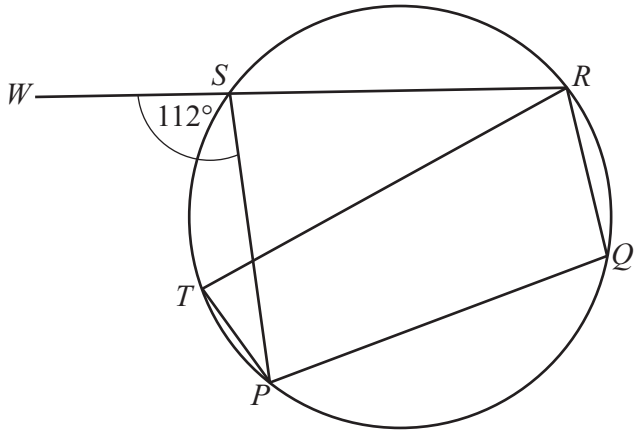
A, *B* and *C* lie on a circle, centre *O*.
Angle *OBA* = 52°.

Calculate angle *ACB*.

Angle *ACB* = ... [2]

[Total: 2]

18



NOT TO SCALE

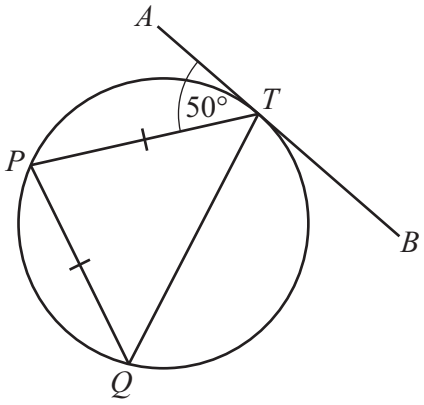
P, *Q*, *R*, *S* and *T* lie on a circle.
WSR is a straight line and angle *WSP* = 112°.

Calculate angle *PTR*.

Angle *PTR* = ... [2]

[Total: 2]

19



NOT TO SCALE

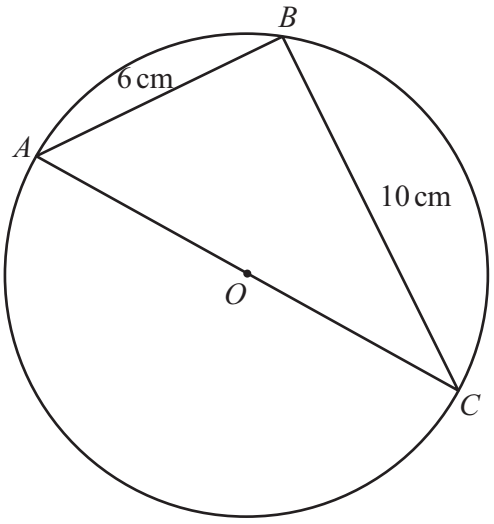
P, *Q* and *T* are points on a circle.
ATB is a tangent to the circle at *T* and *PT* = *PQ*.

Find angle *TPQ*.

Angle *TPQ* = ... [2]

[Total: 2]

20



NOT TO SCALE

A, *B* and *C* lie on a circle, centre *O*, diameter *AC*.

(a) Complete this statement.

Angle *ABC* is 90° because ..... [1]

(b) Work out the area of triangle ABC.

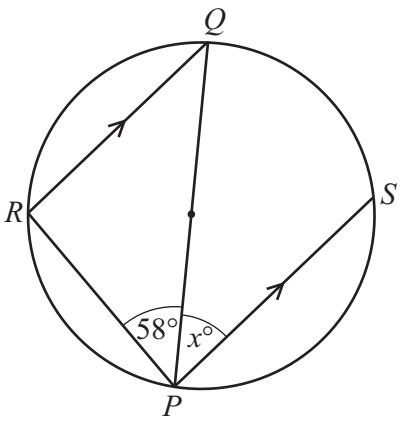
..... cm^2 [2]

(c) Work out AC.

AC = ... cm [2]

[Total: 5]

21



NOT TO SCALE

Points R and S lie on a circle with diameter PQ.
RQ is parallel to PS.
Angle $RPQ = 58°$.

Find the value of x, giving a geometrical reason for each stage of your working.

.....

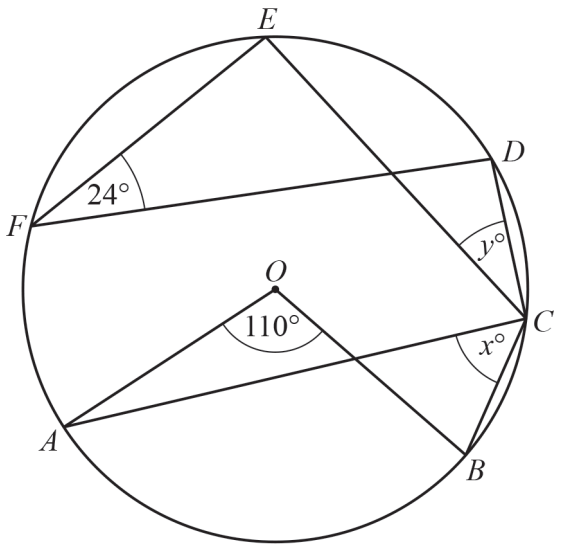
.....

.....

x = ... [3]

[Total: 3]

22



NOT TO SCALE

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

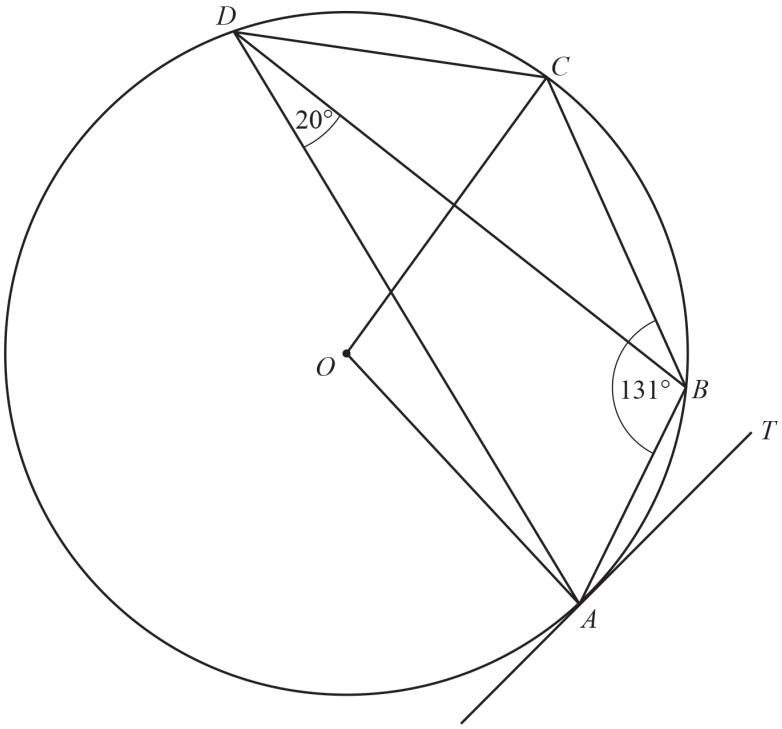
Find the value of x and the value of y.

$x =$ .....

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

[Total: 2]

23



NOT TO SCALE

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*,

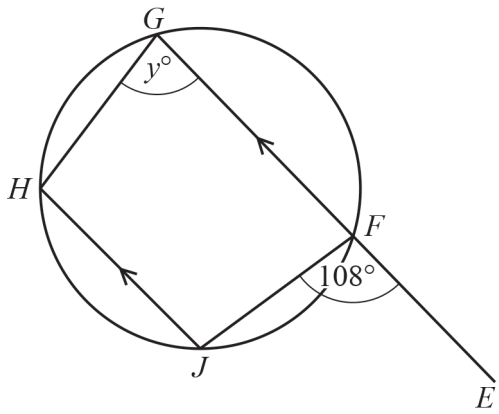
Angle *BAT* = ... [1]

(d) angle *OAB*.

Angle *OAB* = ... [1]

[Total: 4]

24



NOT TO SCALE

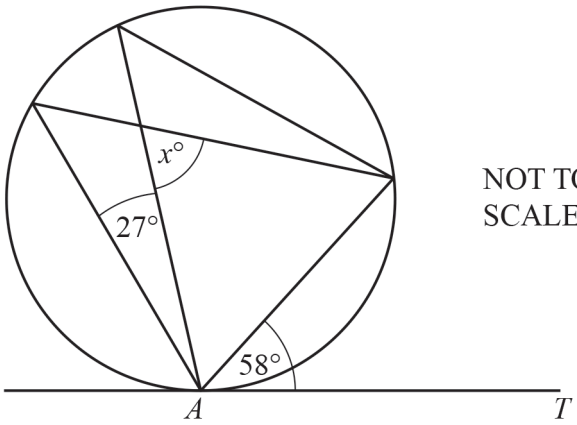
F, *G*, *H* and *J* are points on the circle.
EFG is a straight line parallel to *JH*.

Find the value of *y*.

y = ... [2]

[Total: 2]

25



NOT TO SCALE

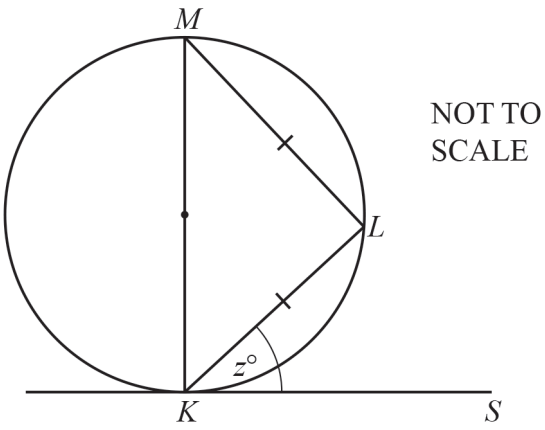
AT is a tangent to the circle at *A*.

Find the value of *x*.

x = ... [2]

[Total: 2]

26



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]