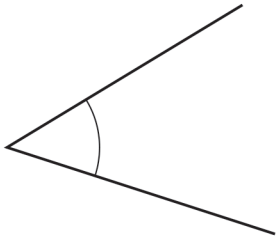
r/IGCSE Resources

Topical Worksheets for Cambridge IGCSE™ Mathematics (0580/0980)

Geometry

1st edition, for examination until 2025

1

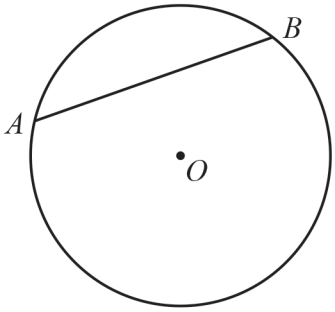


Write down the mathematical name for this type of angle.

..... [1]

[Total: 1]

2



NOT TO SCALE

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

(a) Write down the mathematical name for line *AB*.

..... [1]

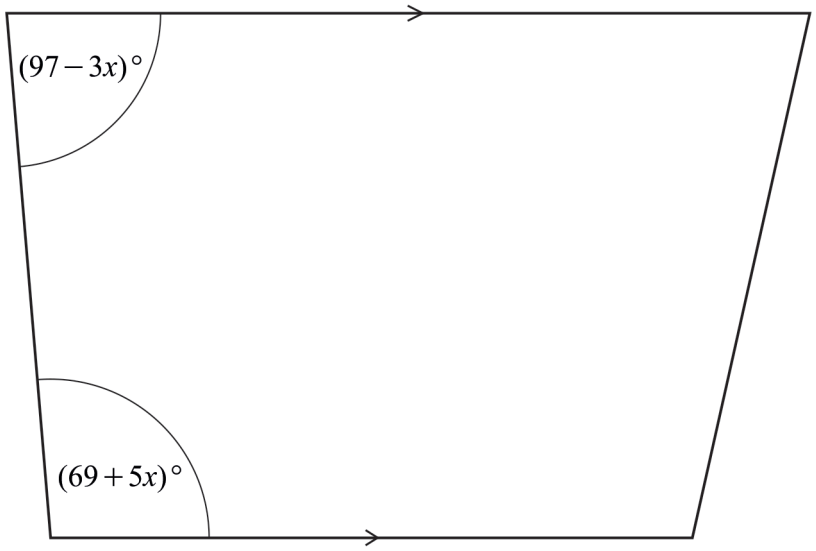
(b) *OA* = 8 cm

Write down the length of the diameter of this circle.

..... cm [1]

[Total: 2]

3 The diagram shows a trapezium.



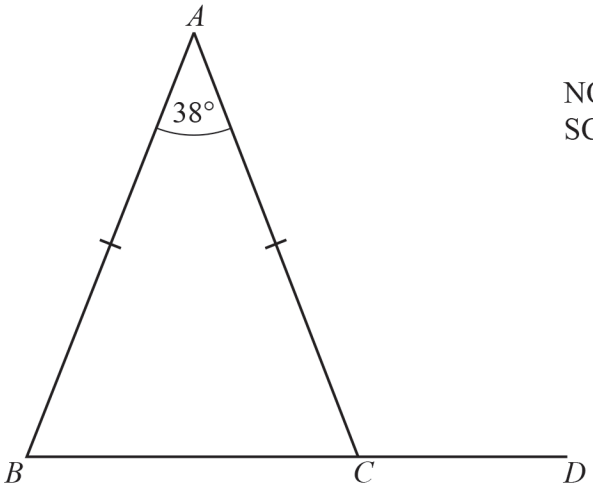
NOT TO SCALE

Work out the value of x.

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

[Total: 3]

4



NOT TO SCALE

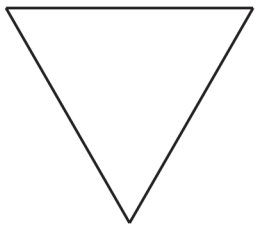
In the triangle ABC, $AB = AC$ and angle $BAC = 38°$.
BCD is a straight line.

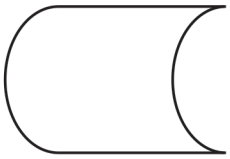
Work out angle ACD.

Angle ACD = ... [3]

[Total: 3]

5

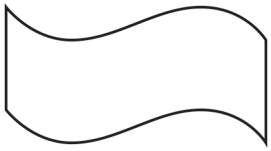




On each shape draw all the lines of symmetry. [3]

[Total: 3]

6

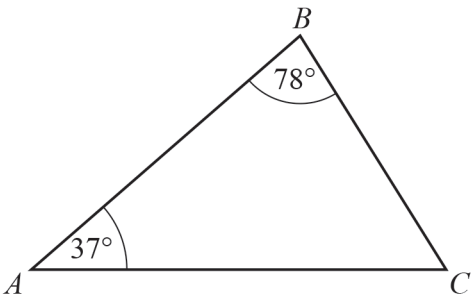


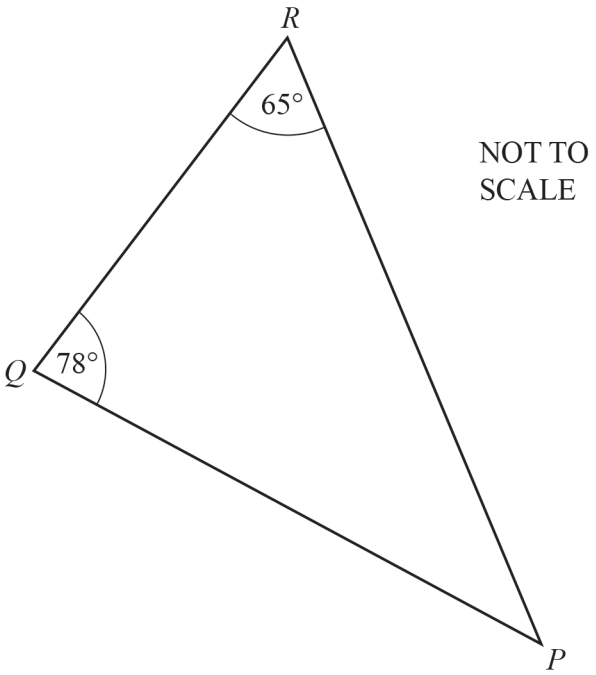
Write down the order of rotational symmetry of this shape.

..... [1]

[Total: 1]

7





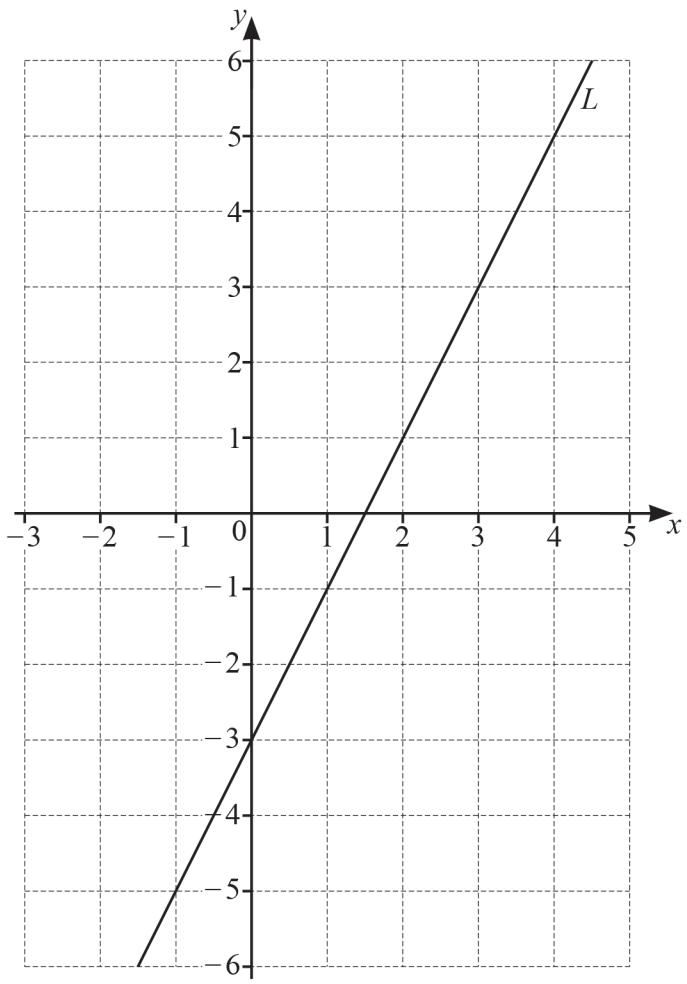
Explain why triangle *ABC* is similar to triangle *PQR*.

.....

..... [2]

[Total: 2]

8



(a) Find the equation of line L in the form $y = mx + c$.

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

(b) On the grid, draw a line that is perpendicular to line L. [1]

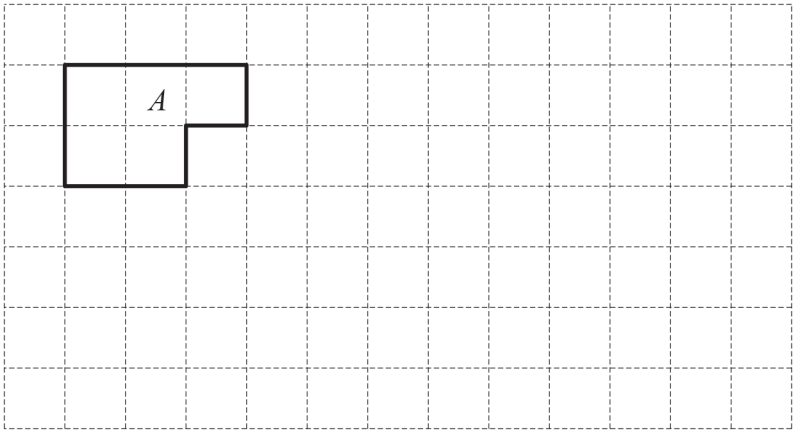
[Total: 3]

9 Work out the size of one interior angle of a regular 9-sided polygon.

..... [2]

[Total: 2]

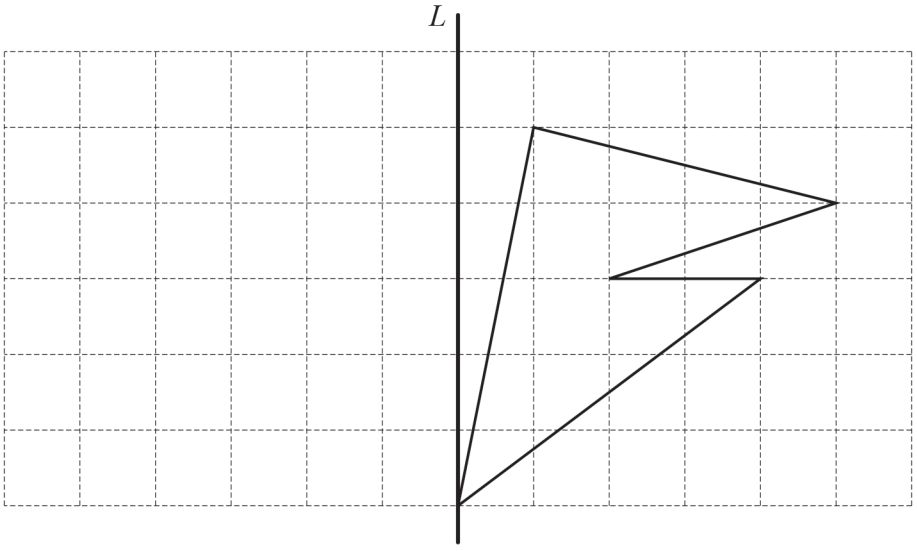
10



On the grid, draw a shape that is congruent to shape *A*. [1]

[Total: 1]

11 Reflect the shape in line *L*.



[2]

[Total: 2]

12 Write down the mathematical name of a quadrilateral that has

- rotational symmetry of order 1

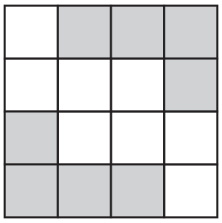
and

- only one line of symmetry.

..... [1]

[Total: 1]

13



Write down the order of rotational symmetry of the diagram.

..... [1]

[Total: 1]

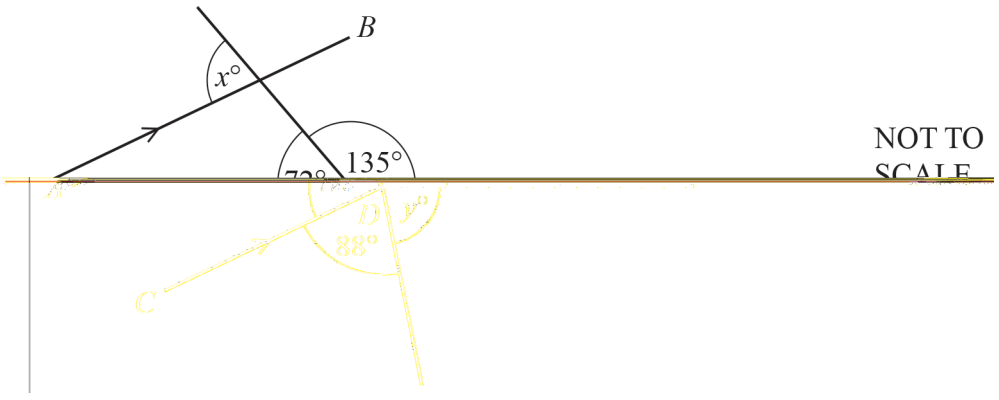
14 A circular garden has diameter 11.4 m.

Draw the garden accurately, using a scale of 1 cm represents 1.5 m.

Scale: 1 cm to 1.5 m
[2]

[Total: 2]

15



In the diagram, *AB* is parallel to *CD*.

(a) Find the value of x.
Give a geometrical reason for your answer.

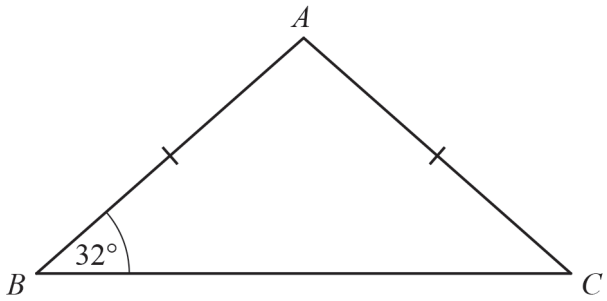
x = ... because ..... [2]

(b) Work out the value of y.
Give a geometrical reason for your answer.

y = ... because ..... [2]

[Total: 4]

16



NOT TO SCALE

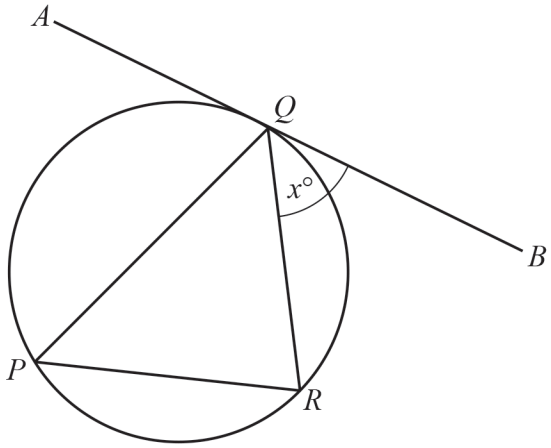
Triangle ABC is isosceles.
Angle $ABC = 32°$ and $AB = AC$.

Find angle BAC.

Angle BAC = ... [2]

[Total: 2]

17



NOT TO SCALE

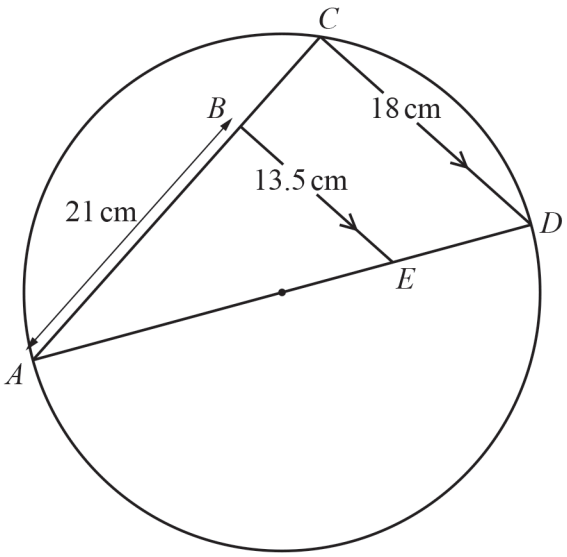
P, R and Q are points on the circle.
AB is a tangent to the circle at Q.
QR bisects angle PQB.
Angle $BQR = x°$ and $x < 60$.

Use this information to show that triangle PQR is an isosceles triangle.
Give a geometrical reason for each step of your work.

[3]

[Total: 3]

18



NOT TO SCALE

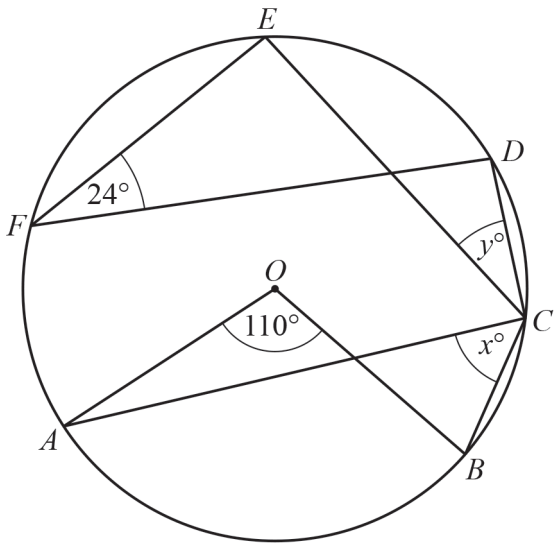
C lies on a circle with diameter *AD*.
B lies on *AC* and *E* lies on *AD* such that *BE* is parallel to *CD*.
AB = 21 cm, *CD* = 18 cm and *BE* = 13.5 cm.

Work out the radius of the circle.

..... cm [5]

[Total: 5]

19



NOT TO SCALE

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

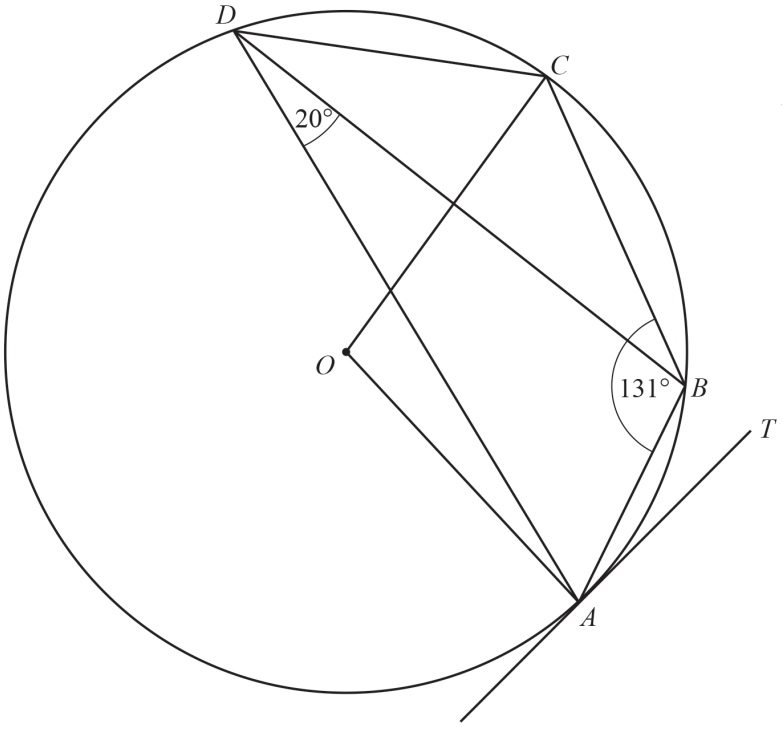
Find the value of x and the value of y.

x = ...

y = ... [2]

[Total: 2]

20



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,

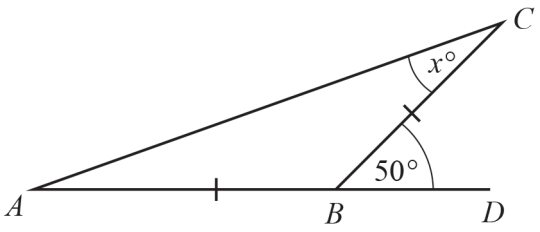
Angle BAT = ... [1]

(d) angle OAB.

Angle OAB = ... [1]

[Total: 4]

21



NOT TO SCALE

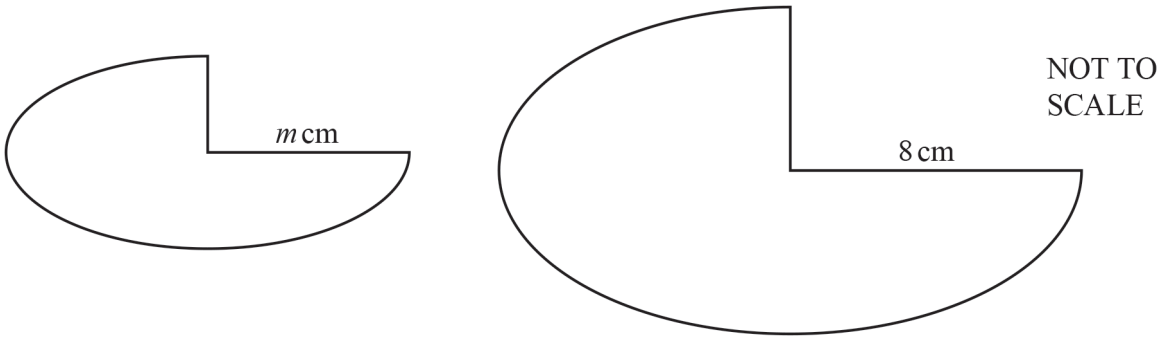
$AB = BC$ and ABD is a straight line.

Find the value of x.

x = ... [2]

[Total: 2]

22



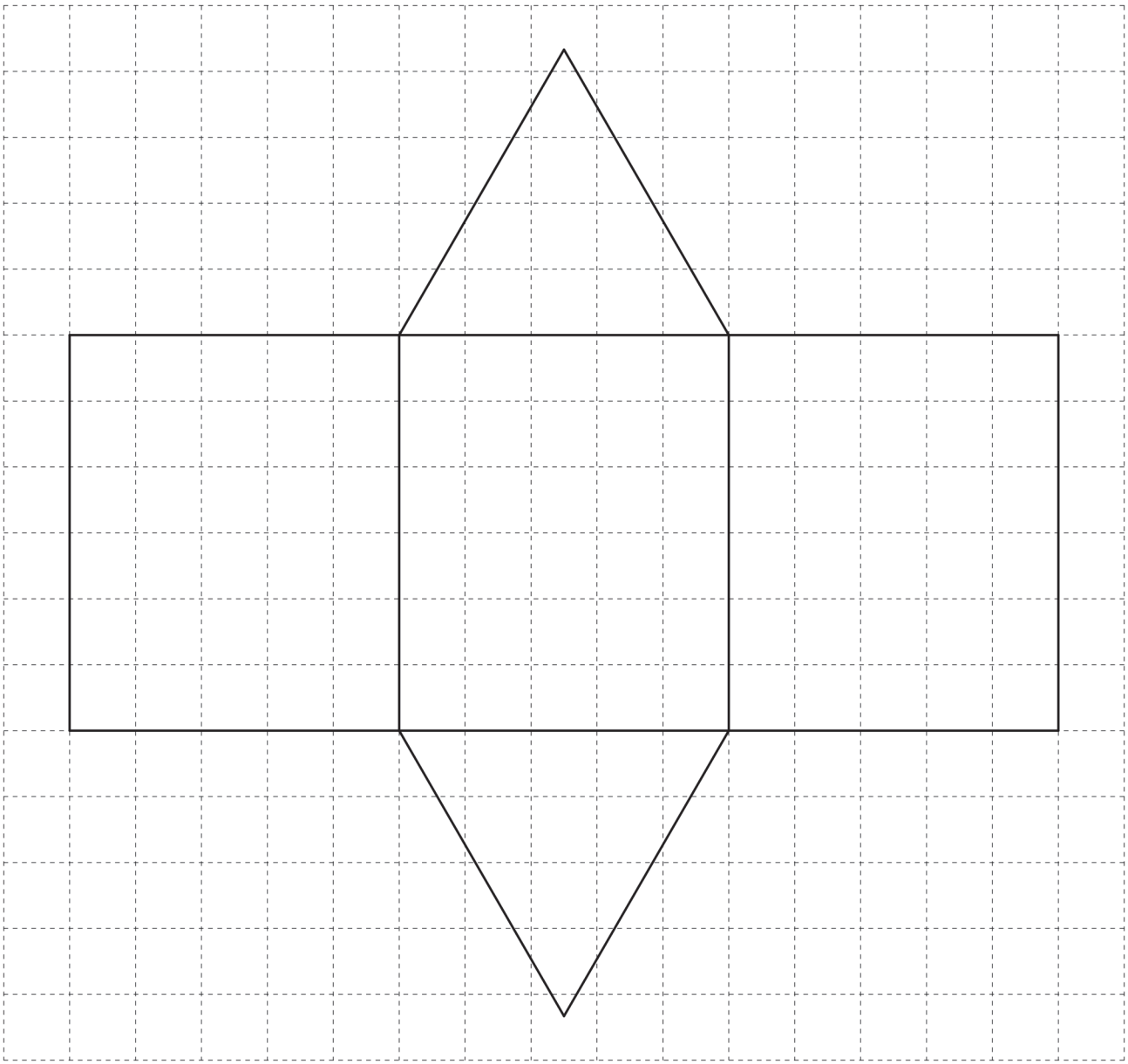
The diagram shows two shapes that are mathematically similar.
The smaller shape has area 52.5 cm^2 and the larger shape has area 134.4 cm^2.

Calculate the value of m.

m = ... [3]

[Total: 3]

23 The diagram shows the net of a triangular prism on a 1 cm^2 grid.



(a) Write down the mathematical name for the type of triangle shown on the grid.

..... [1]

(b) **(i)** Measure the perpendicular height of the triangle.

..... cm [1]

(ii) Calculate the area of the triangle.

..... cm^2 [2]

(iii) Calculate the volume of the triangular prism.

..... cm^3 [2]

[Total: 6]

24 Point B is 36 km from point A on a bearing of 140°.

(a) Using a scale of 1 centimetre to represent 4 kilometres, mark the position of *B*.

Scale: 1 cm to 4 km [2]

(b) **(i)** Point *C* is 28 km from *A* and 20 km from *B*.
The bearing of *C* from *A* is less than 140°.

Using a ruler and compasses only, construct triangle *ABC*.
Show all your construction arcs.

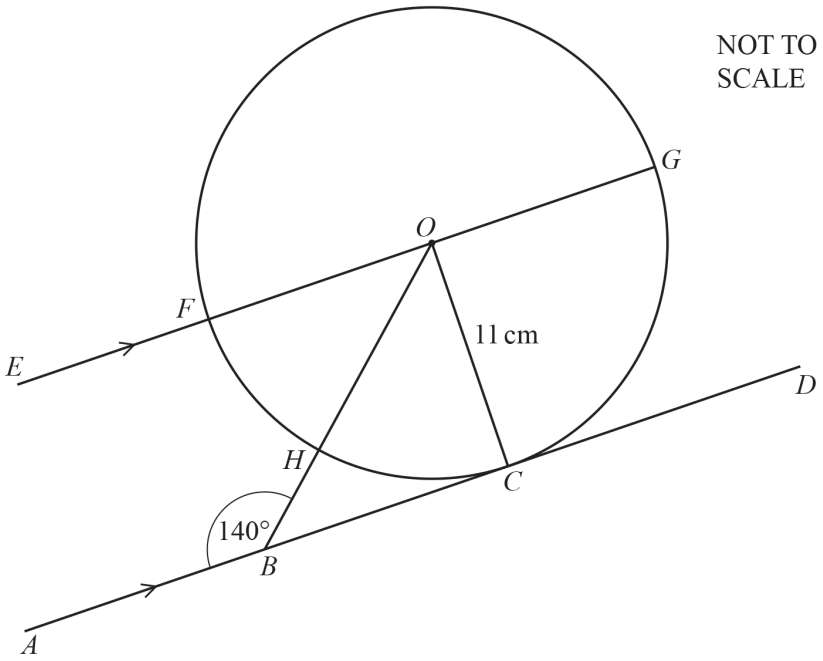
[3]

(ii) Measure angle *ACB*.

Angle *ACB* = ... [1]

[Total: 6]

25



The diagram shows a circle, centre O, radius 11 cm.
C, F, G and H are points on the circumference of the circle.
The line AD touches the circle at C and is parallel to the line EG.
B is a point on AD and angle $ABO = 140°$.

(a) Write down the mathematical name of the straight line AD.

..... [1]

(b) **(i)** Find, in terms of π, the circumference of the circle.

..... cm [2]

(ii) Work out angle FOH.

Angle FOH = ... [2]

(iii) Calculate the length of the minor arc FH.

..... cm [2]

(c) **(i)** Give a reason why angle BCO is 90°.

..... [1]

(ii) Show that $BC = 13.11$ cm, correct to 2 decimal places.

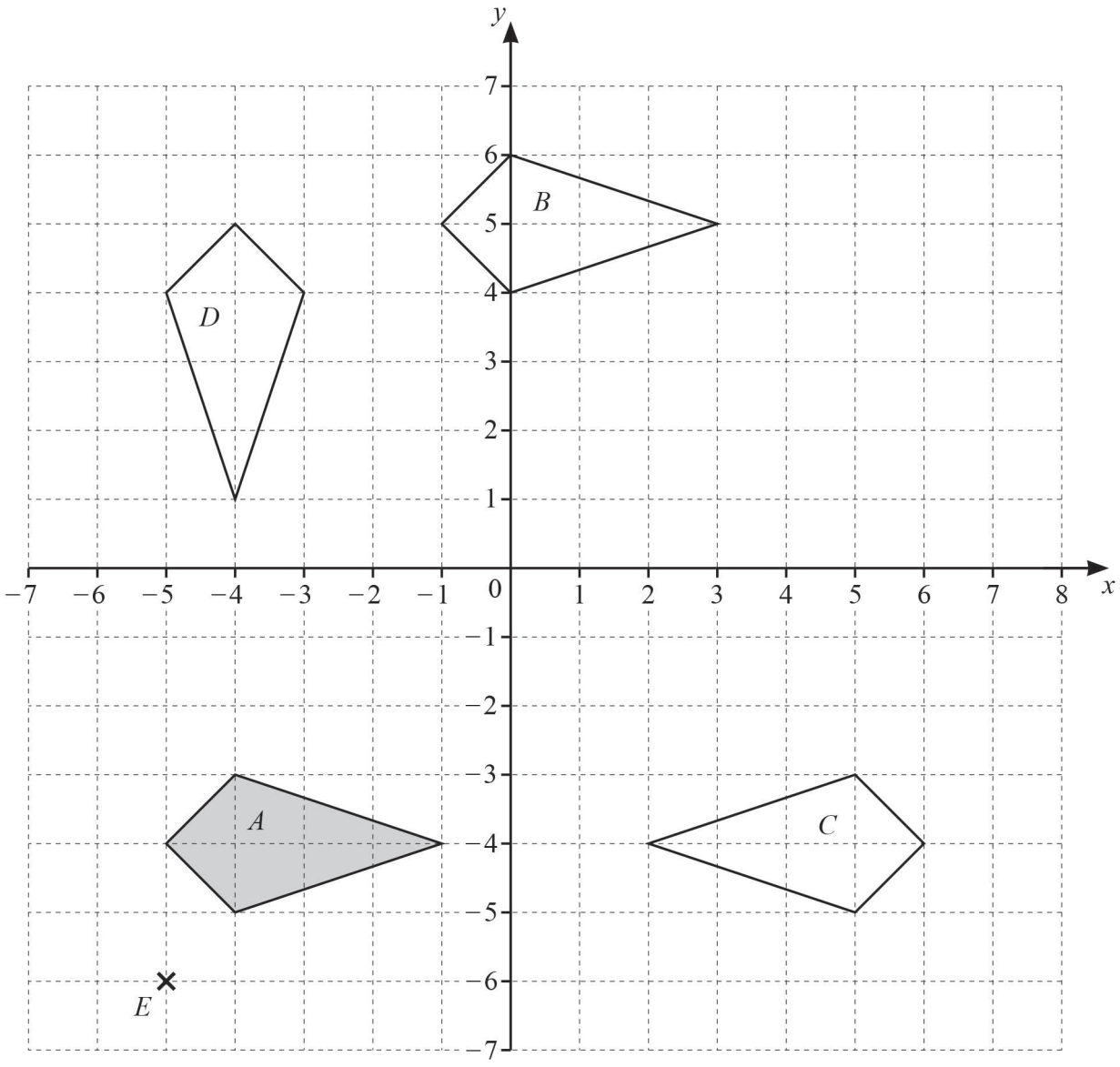
[3]

(iii) Calculate BH.

$BH =$ ..... cm [3]

[Total: 14]

26 The grid shows a point E and four quadrilaterals, A, B, C and D.



(a) Write down the mathematical name of shape *A*.

..... [1]

(b) Describe fully the **single** transformation that maps

(i) shape *A* onto shape *B*,

.....

..... [2]

(ii) shape *A* onto shape *C*,

.....

..... [2]

(iii) shape *A* onto shape *D*.

.....

..... [3]

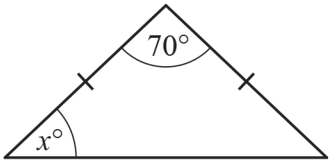
(c) **(i)** Write down the coordinates of the point *E*.

(..... , ...) [1]

(ii) On the grid, draw the image of shape *A* after an enlargement by scale factor 3, centre *E*. [2]

[Total: 11]

27



NOT TO SCALE

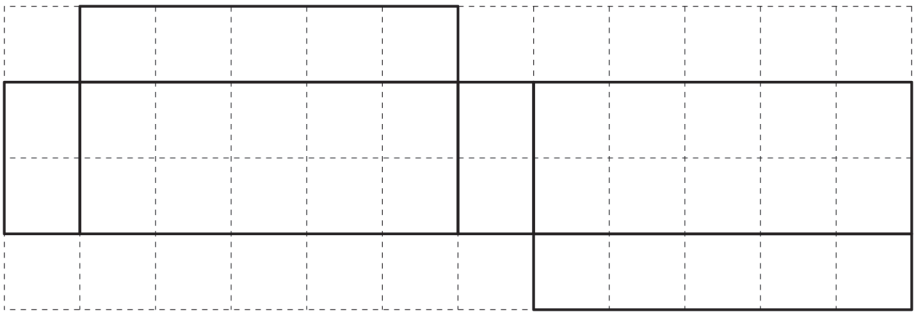
The diagram shows an isosceles triangle.

Find the value of *x*.

x = ... [2]

[Total: 2]

28 The diagram shows the net of a solid on a 1 cm^2 grid.



(a) Write down the mathematical name for the solid.

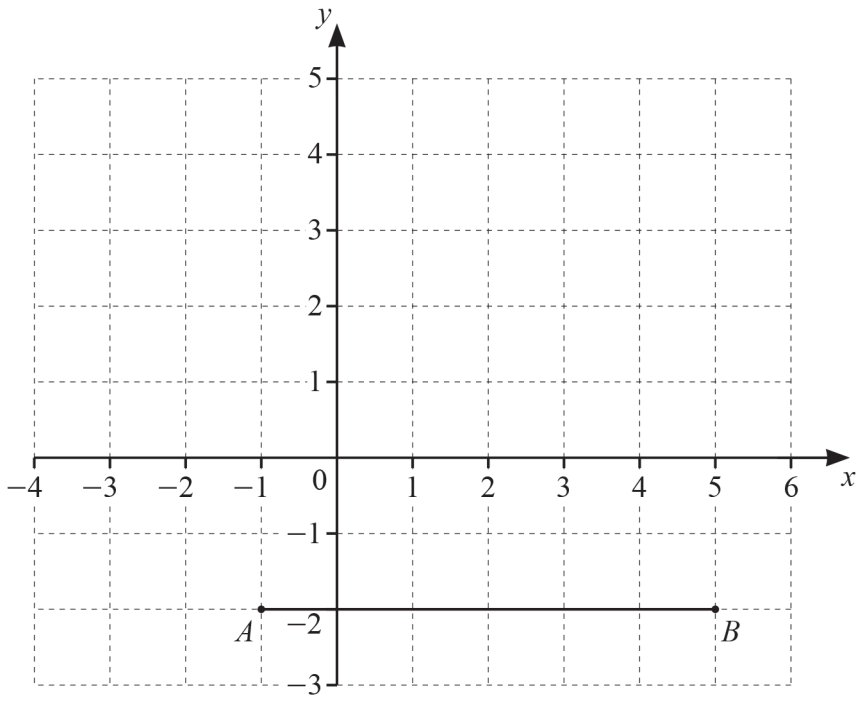
..... [1]

(b) Work out the volume of the solid.

..... cm^3 [2]

[Total: 3]

29 The diagram shows a line AB on a 1 cm^2 grid.



(a) Write down the coordinates of point A.

(..... , ...) [1]

(b) Write down the vector $\overrightarrow{AB}$.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(c) $\overrightarrow{BC} = \begin{pmatrix} -2 \\ 5 \end{pmatrix}$

Mark point C on the grid. [1]

(d) **(i)** Work out $\overrightarrow{AB} + \overrightarrow{BC}$.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(ii) Complete this statement.

$$\overrightarrow{AB} + \overrightarrow{BC} = \overrightarrow{\quad\quad}$$

..... [1]

(e) A, B and C are three vertices of a parallelogram, $ABCD$.

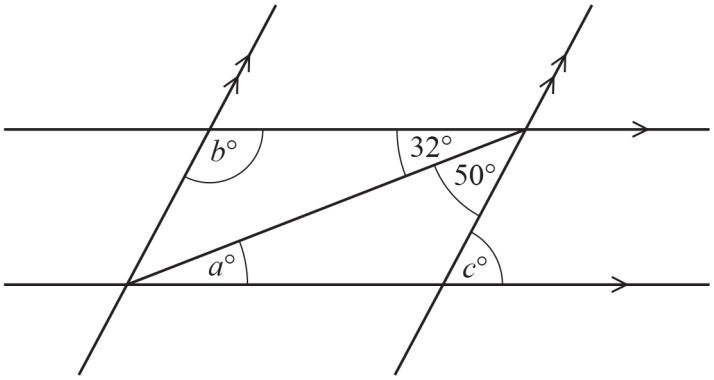
(i) Mark point D on the diagram and draw the parallelogram $ABCD$. [1]

(ii) Work out the area of the parallelogram.
Give the units of your answer.

.... [2]

[Total: 8]

30



NOT TO SCALE

The diagram shows two pairs of parallel lines.

Find the value of a, the value of b and the value of c.

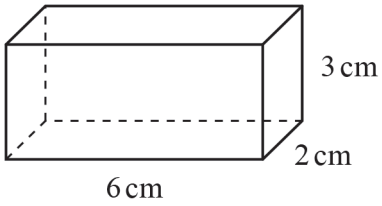
a = ...

b = ...

c = ... [3]

[Total: 3]

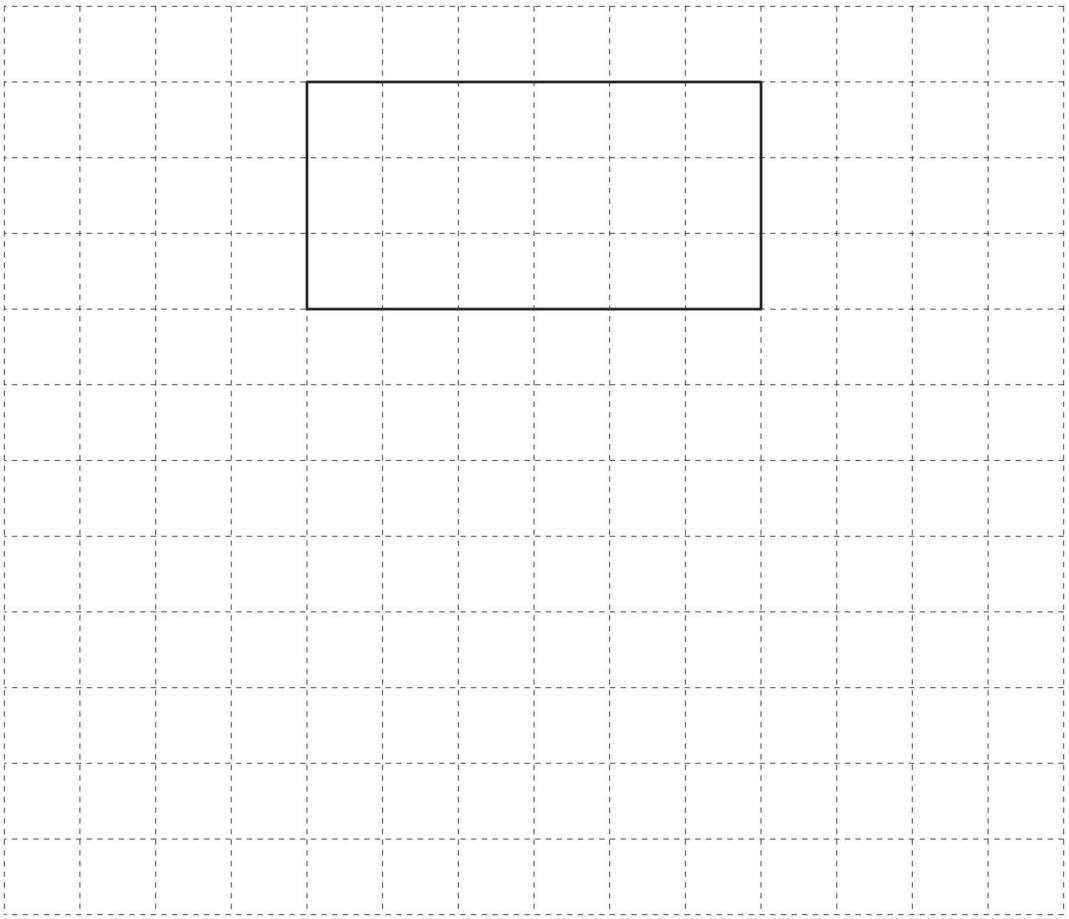
31



NOT TO SCALE

The diagram shows a cuboid.

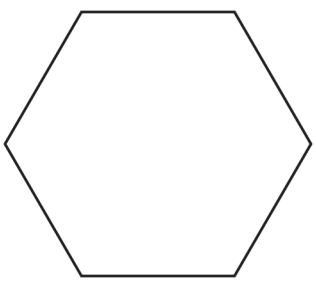
On the 1 cm^2 grid, complete the net of the cuboid.
One face has been drawn for you.



[3]

[Total: 3]

32 The diagram shows a regular polygon.



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

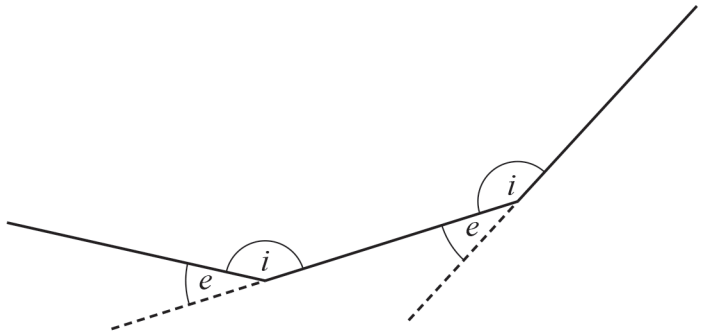
..... [1]

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

..... [1]

[Total: 2]

33 The diagram shows part of a regular polygon.



NOT TO SCALE

e is an exterior angle.
i is an interior angle.

The ratio $e : i = 2 : 13$.

(a) Work out angle *e*.

..... [3]

(b) Work out the number of sides of this regular polygon.

..... [1]

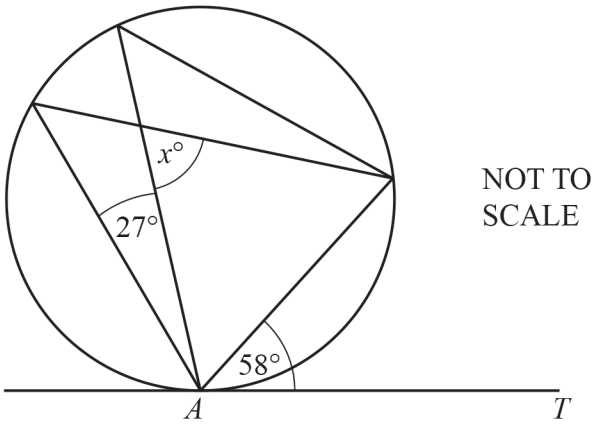
[Total: 4]

34 **Using a straight edge and compasses only,** construct the equilateral triangle *ABC*.
Side *AB* has been drawn for you.

[2]

[Total: 2]

35



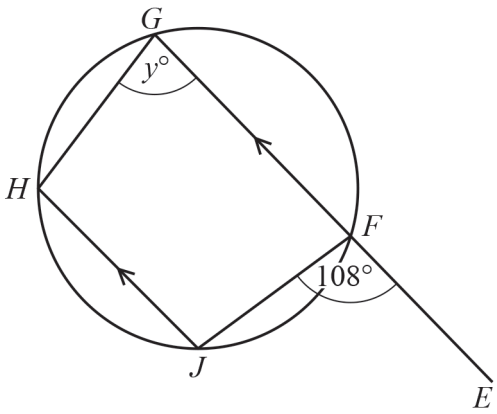
AT is a tangent to the circle at *A*.

Find the value of *x*.

x = ... [2]

[Total: 2]

36



NOT TO SCALE

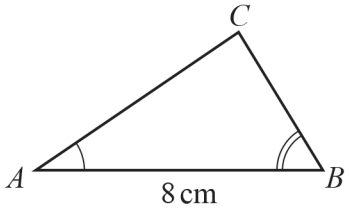
F, *G*, *H* and *J* are points on the circle.
EFG is a straight line parallel to *JH*.

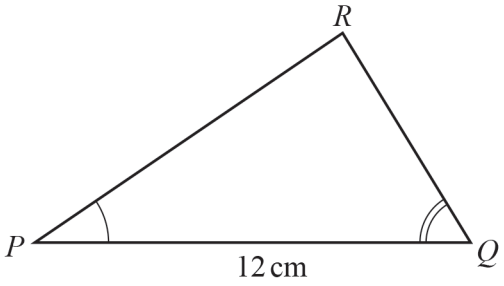
Find the value of *y*.

y = ... [2]

[Total: 2]

37





NOT TO SCALE

Triangle *ABC* is mathematically similar to triangle *PQR*.
The area of triangle *ABC* is 16 cm^2.

(a) Calculate the area of triangle *PQR*.

..... cm^2 [2]

(b) The triangles are the cross-sections of prisms which are also mathematically similar.
The volume of the smaller prism is $320\,cm^3$.

Calculate the length of the larger prism.

..... cm [3]

[Total: 5]

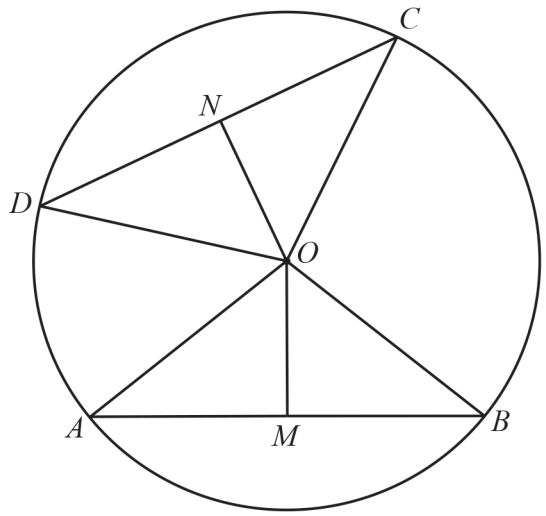
38 The interior angle of a regular polygon with n sides is 150°.

Calculate the value of n.

n = ... [2]

[Total: 2]

39



NOT TO SCALE

A, *B*, *C* and *D* are points on the circle, centre *O*.
M is the midpoint of *AB* and *N* is the midpoint of *CD*.
OM = *ON*

Explain, giving reasons, why triangle *OAB* is congruent to triangle *OCD*.

.....

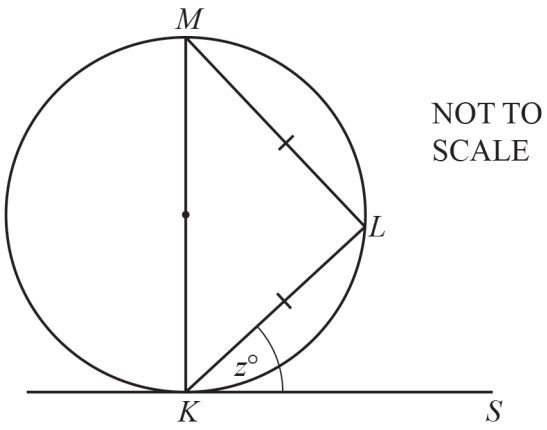
.....

.....

..... [3]

[Total: 3]

40



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]

r/IGCSE Resources

r/IGCSE Resources repository | r/IGCSE subreddit | Official Discord Server

Subreddit: igcse.reddit.com

Official Discord Server: discord.gg/IGCSE

Acknowledgements and Information:

© UCLES 2018 as the publisher of the Cambridge IGCSE™ Mathematics (0580/0980) syllabus. Content which is in the worksheets are also provided by UCLES, compiled from past-year question papers.

© r/IGCSE Resources 2023, worksheets provided by Pt

The information on this booklet was generously prepared by alumni who have taken the subject, and the author(s) have been acknowledged where possible. The website links which may be in this document should not be understood to be an endorsement of that website or the site/folder's owners (or their products/services).

This booklet is meant to be for educational purposes only, and is to remain free of cost for the benefit of all students. The moderators of r/IGCSE will be pleased to make amendments at the earliest possible opportunity if requested.

© r/IGCSE Resources 2023