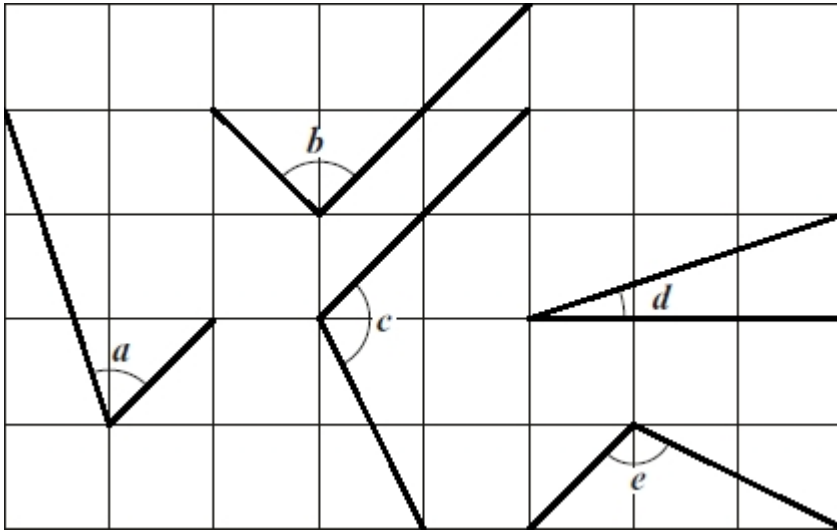


1

Here are five angles marked on a grid of squares.



Write the letters of the angles that are **obtuse**.

1 mark

Write the letters of the angles that are **acute**.

1 mark

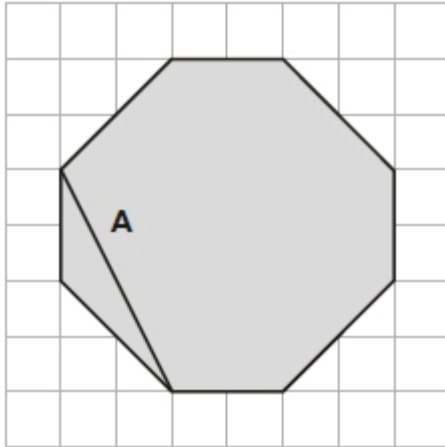
2

The diagram shows a shaded octagon on a square grid.

Line **A** joins two vertices of the octagon.

Join two other vertices to draw a line **parallel** to line **A**.

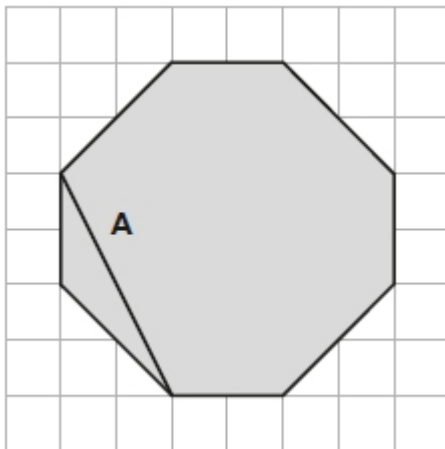
Use a ruler.



1 mark

Join two vertices to draw a line **perpendicular** to line **A**.

Use a ruler.

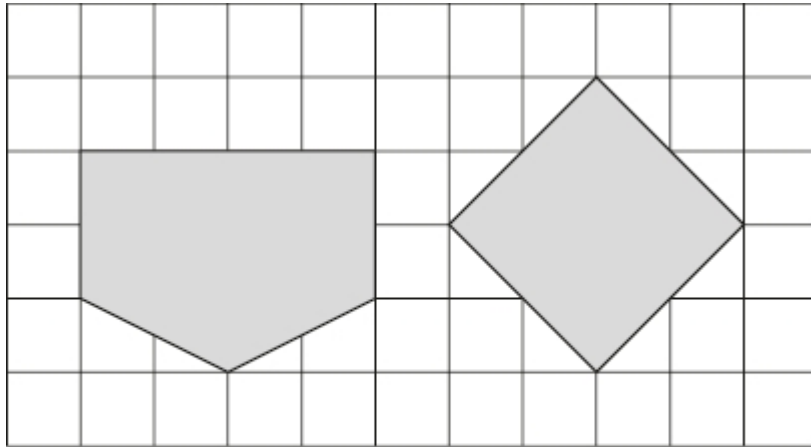


1 mark

3

Here are two shapes on a square grid.

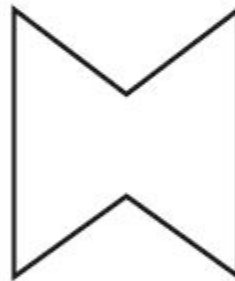
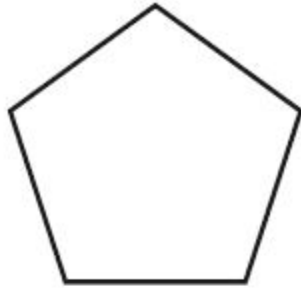
For each shape, write how many **right angles** it has.



1 mark

4

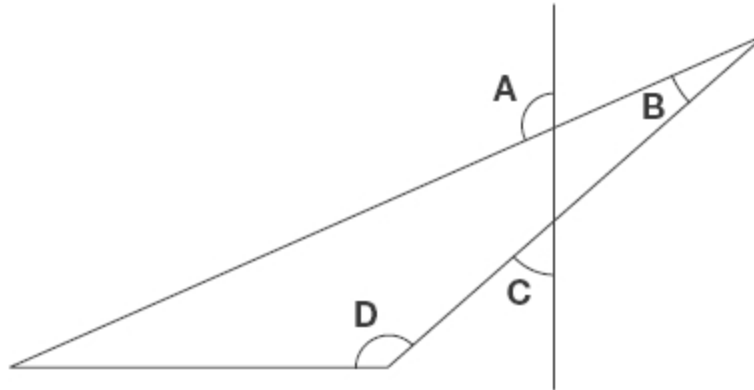
Circle the **pentagon** with exactly **four acute angles**.



1 mark

5

This diagram has four angles marked **A**, **B**, **C** and **D**.

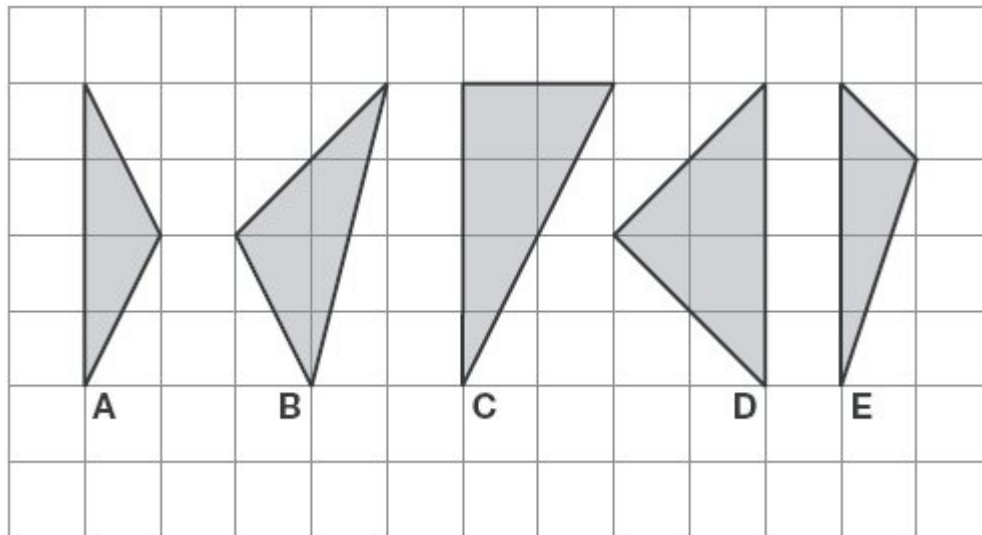


Write the letters of the angles that are **obtuse** angles.

1 mark

6

Here are five shaded triangles on a square grid.



Write the letter of each triangle that has a **right angle**.

1 mark

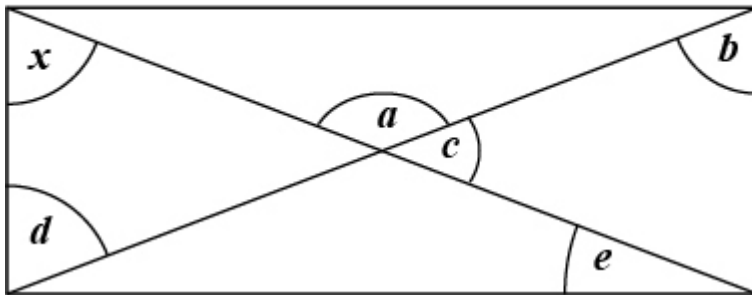
Write the letter of each triangle that has **two equal sides**.

1 mark

7

This is a rectangle with its two diagonals.

not drawn accurately



Angle $x = 58^\circ$

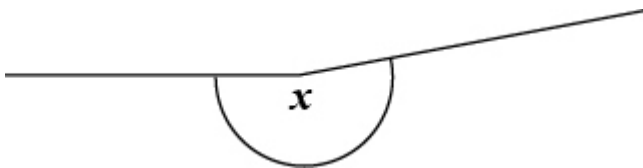
Circle the **two** angles that are the same size as angle x

a b c d e

1 mark

8

Estimate the size of angle x



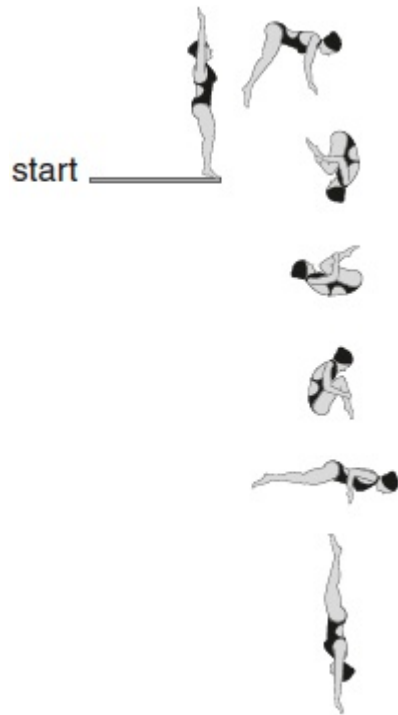
Circle the closest estimate.

170° 310° 190° 260° 180°

1 mark

9

Layla completes one-and-a-half somersaults in a dive.



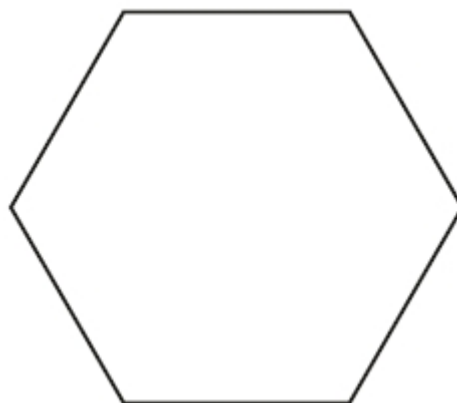
How many **degrees** does Layla turn through in her dive?

1 mark

10

Here is a hexagon.

Draw **two** straight lines across the hexagon to make two triangles and two quadrilaterals.



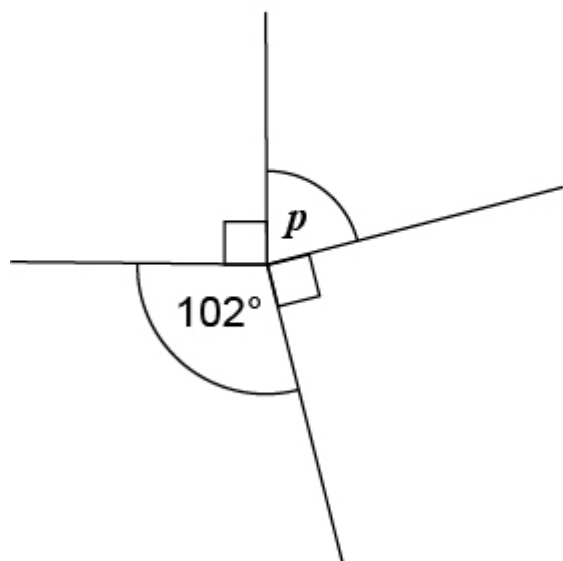
1 mark

11

Calculate the size of angle p in the diagram.

Do not use a protractor (angle measurer).

not drawn accurately



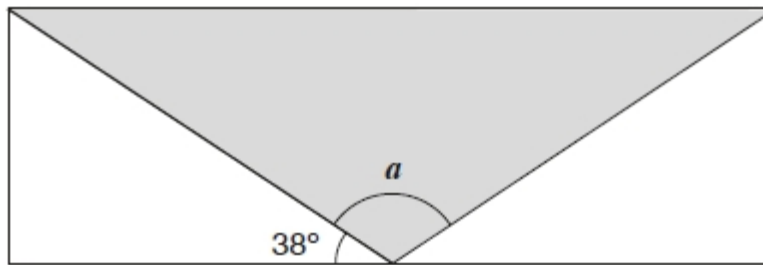
Show
your
method



2 marks

12

A shaded **isosceles** triangle is drawn inside a rectangle.



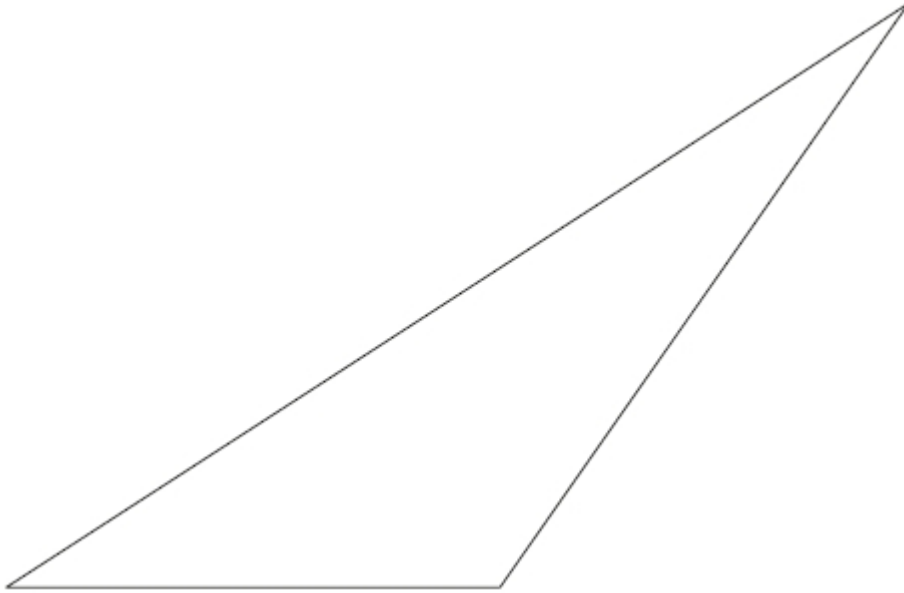
Not
to
scale

Calculate the size of angle a .

Show
your
method

2 marks

13



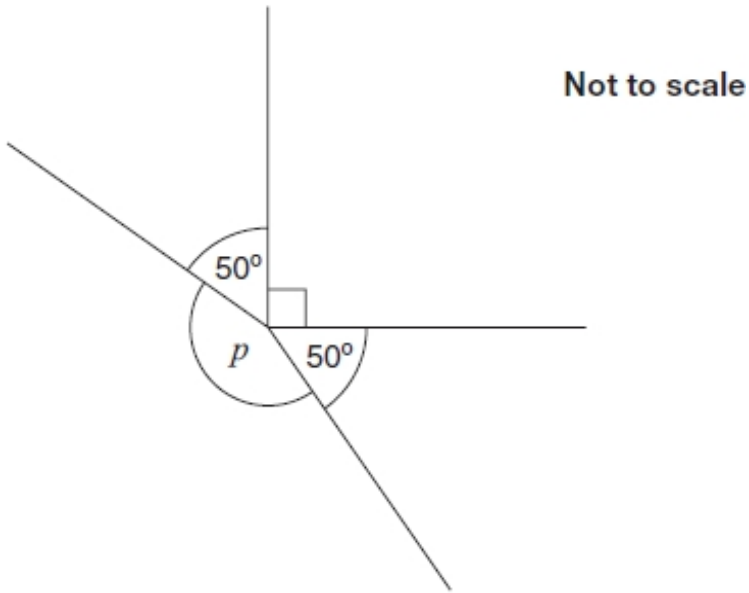
Measure the length of the shortest side of this triangle in millimetres.

1 mark

Measure the size of the largest angle in this triangle.

1 mark

14



Calculate the size of angle p in the diagram.

Do **not** use a protractor (angle measurer).

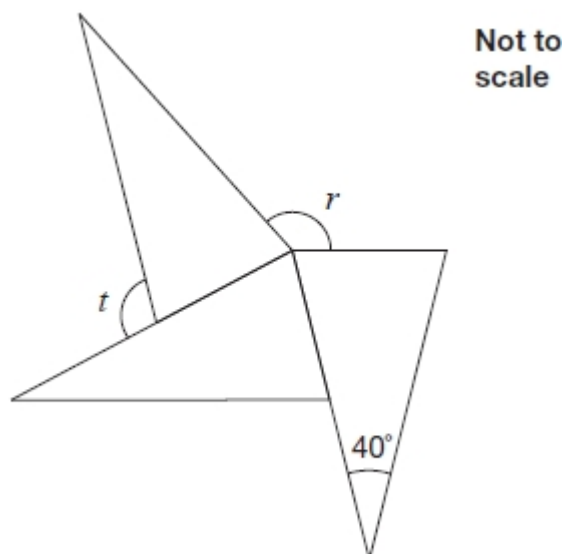
Show your method

A large grid for showing the method. The grid is 20 units wide and 10 units high. A small rectangular box is provided for the final answer, located in the bottom right corner of the grid area.

2 marks

15

The diagram shows three **identical** isosceles triangles.



What are the sizes of angles r and t ?

Show
your
method

$r =$

o

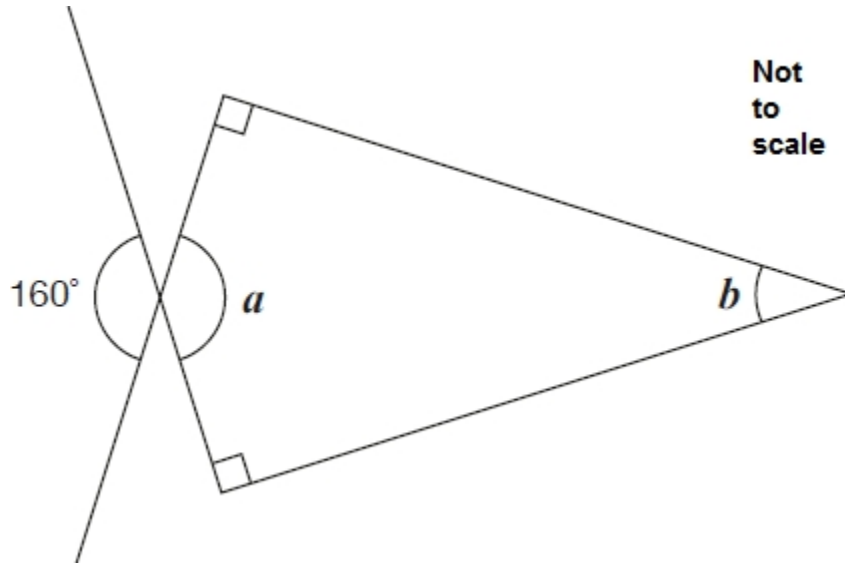
$t =$

o

2 marks

16

Calculate the size of angles a and b in this diagram.


$$a =$$

1 mark

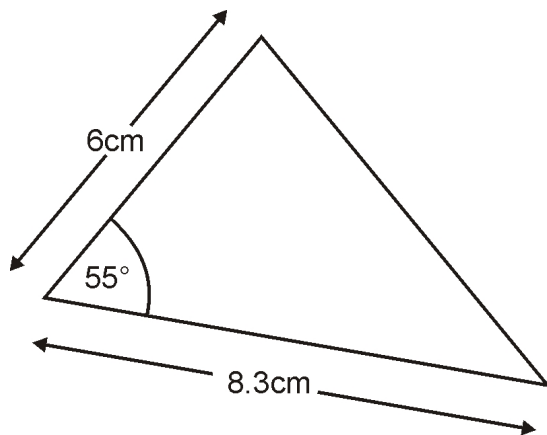
$$b =$$

1 mark

17

Here is a sketch of a triangle.

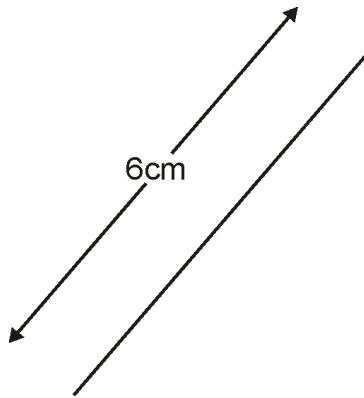
It is not drawn to scale.



Draw the full-size triangle accurately below.

Use a protractor (angle measurer) and a ruler.

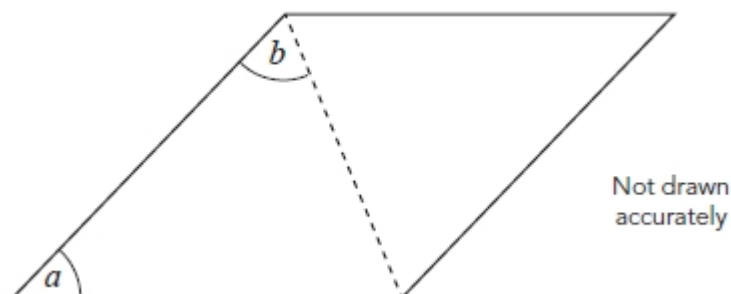
One line has been drawn for you.



2 marks

18

The dotted line is a diagonal of this **rhombus**.



If angle $a = 80^\circ$, what is angle b ?

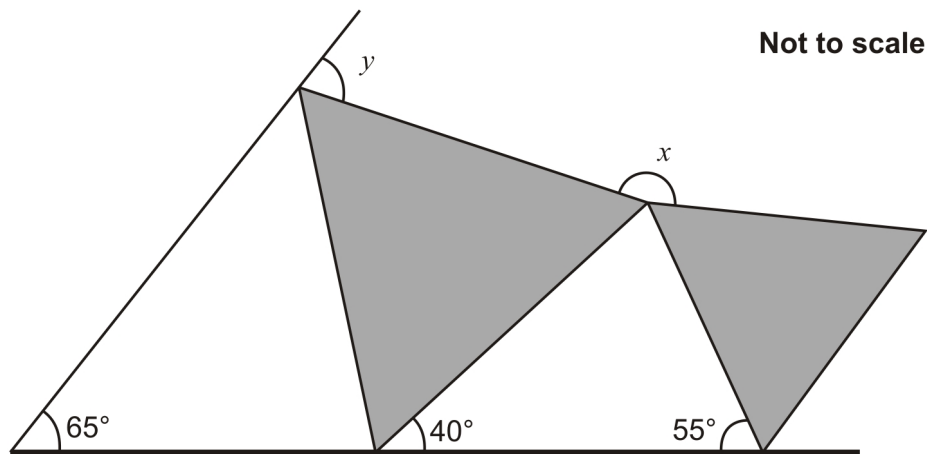
Show
your
method

If angle $b = 80^\circ$, what is angle a ?

3 marks

19

The diagram shows two shaded **equilateral triangles**.



Calculate the size of the **angle x°** and **angle y**

Do **not** use a protractor (angle measurer).

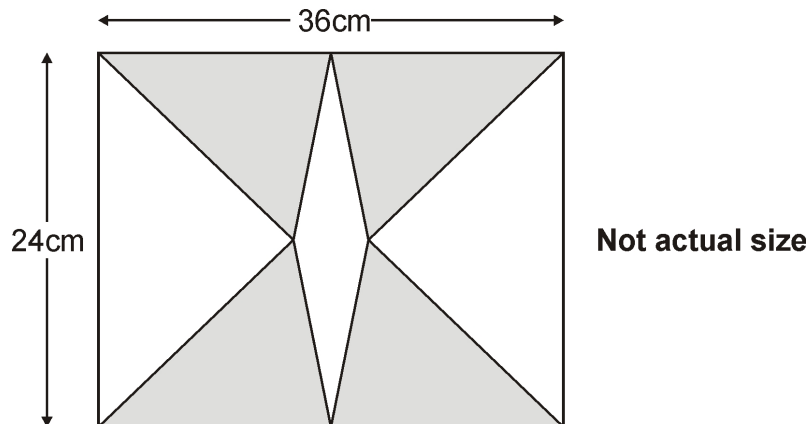
$x =$

$y =$

2 mark

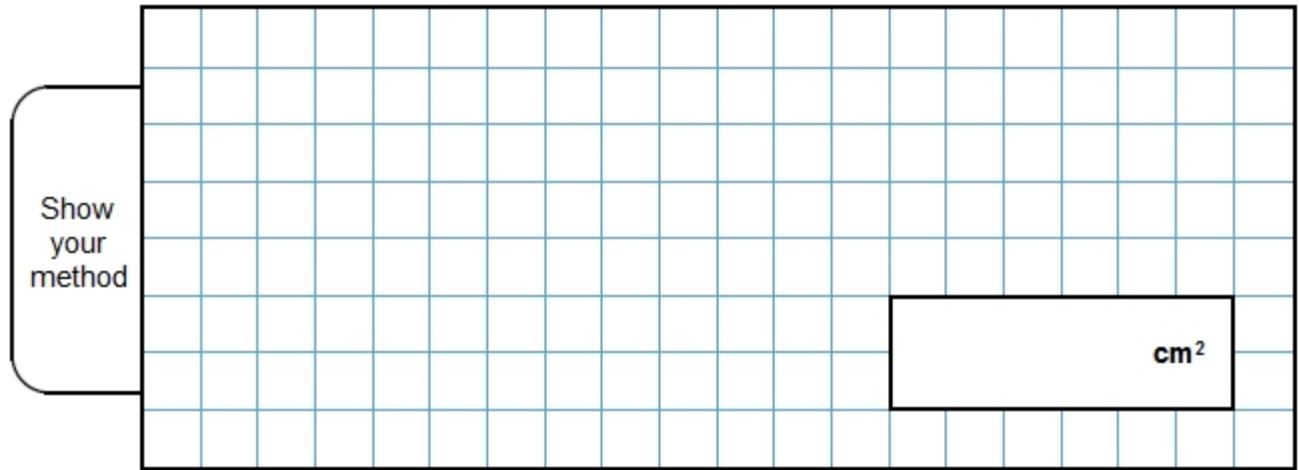
20

The diagram shows **4 identical shaded triangles** in a rectangle.



The rectangle measures **36 centimetres** by **24 centimetres**.

Calculate the **area** of **one shaded triangle**.



2 mark

Mark schemes

1

- (a) **c AND e**

Letters may be given in either order.

1

- (b) **a AND d**

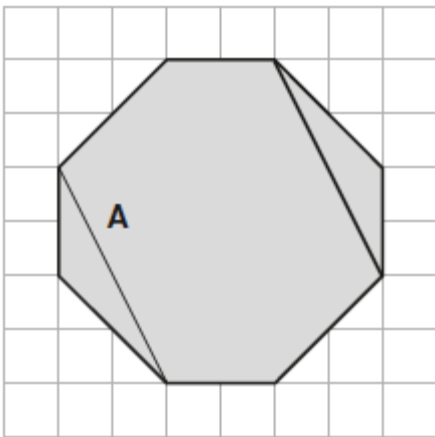
Letters may be given in either order.

1

[2]

2

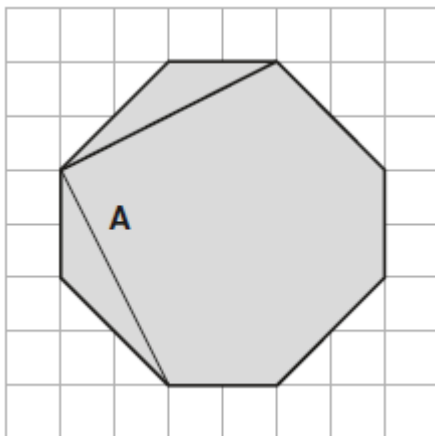
- (a) Line drawn parallel to A, as shown:



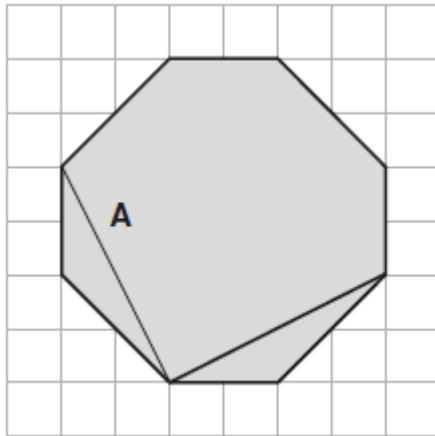
Accept slight inaccuracies in drawing, provided the intention is clear.

1

- (b) Line drawn perpendicular to A, as shown:



OR



Accept slight inaccuracies in drawing, provided the intention is clear.

1

[2]

3

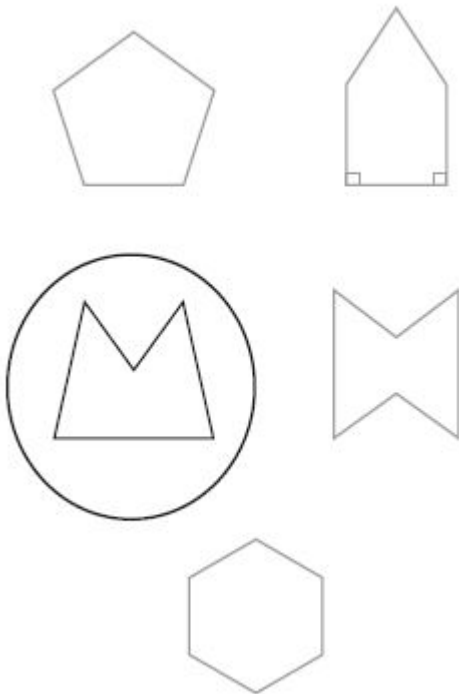
2 AND 4

Accept alternative unambiguous indications, eg right angles marked on diagrams.

[1]

4

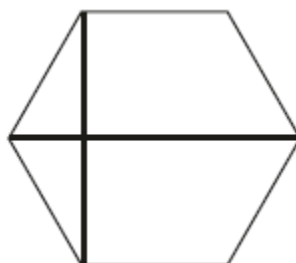
The correct shape circled as shown:



Accept alternative unambiguous positive indications, e.g. shape ticked.

[1]

- 5** A **AND** D
Letters may be given in either order. [1]
- 6** (a) C **AND** D
Letters may be given in either order. 1
- (b) A **AND** D
Letters may be given in either order. 1 [2]
- 7** *b and d*
Accept an indication on the diagram. [1]
- 8** 190° indicated [1]
- 9** 540 [1]
- 10** Diagram completed as shown:



OR



Accept slight inaccuracies in drawing, provided the intention is clear.

Diagrams may be completed in any orientation.

U1

[1]

11Award **TWO** marks for the correct answer of 78° If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

$$90 + 90 + 102 = 282$$

$$360 - 282 =$$

[2]**12**Award **TWO** marks for the correct answer of 104° .If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g:

- $180 - 38 - 38 = a$

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[2]**13**(a) Answer is teacher's measurement ± 2 mm.

1

(b) Answer in the range 123° to 127° **inclusive**.

1

[2]**14**Award **TWO** marks for correct answer of 170°

Up to 2

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg:

- $50 + 50 + 90 = 190$

$$360 - 190$$

OR

- $360 - 50 - 50 - 90$

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[2]**15**

$$r = 150 \text{ and } t = 110$$

Values must be unambiguously associated with the correct letter for the award of 2m or 1m

2

or**r or t** correct

OR

Shows or implies a complete, correct method for both angles, eg:

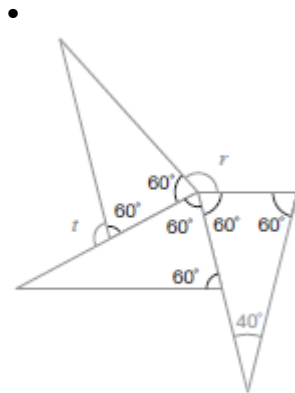
- $40 + 50 + 50 = 180$ (error)
 $360 - 50 - 50 - 50 = 210$
 $180 - 50 = 130$

! Answers for r and t transposed

If r is 110 and t is 150, then award 1m

! Follow-through from incorrect base angle seen on the diagram

Award 1m if both r and t correctly follow through from an incorrect angle seen at base of an isosceles triangle, eg:



$$r = 360 - 180 = 180$$

$$t = 180 - 60 = 120$$

1

[2]

16

(a) 160

1

(b) 20

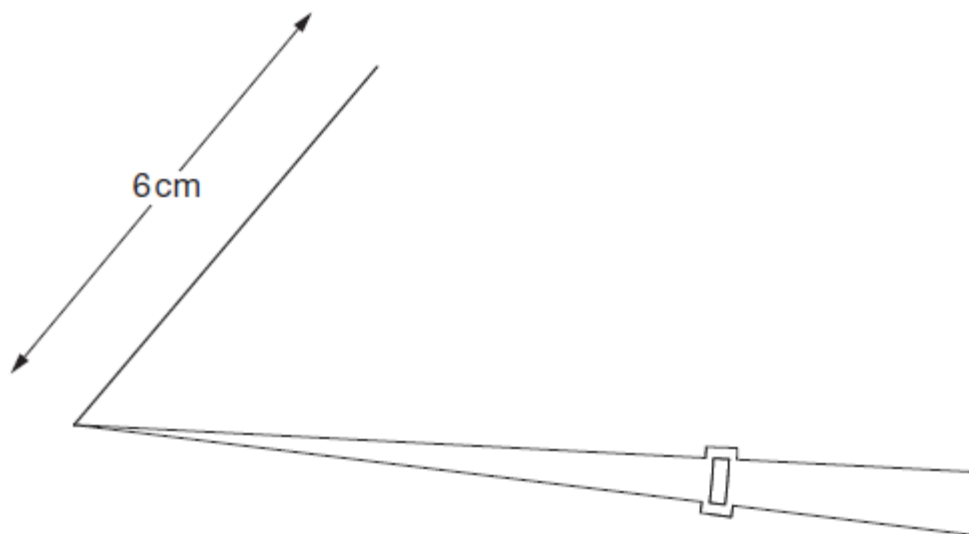
If the answers to a and b are incorrect, award **ONE** mark if
 $a + b = 180^\circ$ unless b is between 33° and 37° inclusive, or 90° .

1

[2]

17

Award **TWO** marks for a triangle drawn with an angle in the range 53° to 57° inclusive **AND** length of base line in the range 8.2cm to 8.4cm inclusive (ie lower vertex of the triangle within the inner box on the diagram, see below).



If the answer is incorrect, award **ONE** mark for:

- a completed triangle drawn with an angle in the range 53° to 57° inclusive.

OR

- a completed triangle drawn with an angle in the range 52° to 58° inclusive **AND** length of base line 8.1cm to 8.5cm inclusive.

Accept drawings where any side has been extended past a vertex.

Accept drawings which do not use the given 6cm line, provided they have used a line with a length in the range 5.9cm to 6.1cm inclusive.

*Accept for **ONE** mark drawings not using the given 6cm line which have used a line **outside** the range 5.9cm to 6.1cm inclusive, provided they have an angle in the range 53° to 57° inclusive **AND** a base line in the range 8.2cm to 8.4cm inclusive.*

*Accept for **ONE** mark drawings of **incomplete triangles**, provided they have an angle in the range 53° to 57° inclusive **AND** a base line in the range 8.2cm to 8.4cm inclusive.*

Up to 2m

[2]

18

$$b = 50$$

1

$$a = 20$$

1
U1

As evidence of a correct method, in either part, shows or implies that the angles in one of the triangles are a , b and b

eg, in the first question part

- 80, 50, 50 seen
- $(180 - 80) \div 2$
- $(360 - 160) \div 2 \div 2$

eg, in the second question part

- $180 - 2 \times 80$
- $(360 - 160 \times 2) \div 2$

eg, correct answers transposed

! Incomplete or no working shown

Provided at least one correct angle is credited, award this mark

! In the second question part 80, 80, 20 is insufficient without any indication of the position of the equal angles

1

[3]

19

(a) $x = 155^\circ$

1

(b) $y = 85^\circ$

*If answers for 5a and 5b are transposed, but otherwise correct, award **ONE** mark only, in the 5b box.*

1

[2]

20

Award **TWO** marks for the correct answer of 108 cm^2

If the answer is incorrect award **ONE** mark for evidence of an appropriate method, eg

$$36 \div 2 = 18$$

$$24 \div 2 = 12$$

$$\text{area} = \frac{1}{2} \times 12 \times 18$$

Calculation need not be completed for the award of the mark.

No mark is awarded for the result of calculating 12×18 only.

Up to 2

[2]