1. **[4 marks]**

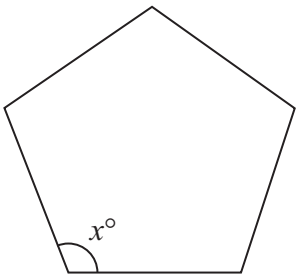

Diagram **NOT** accurately drawn

The diagram shows a regular 5-sided polygon.

(a) Work out the value of x.

x = ...

(2)

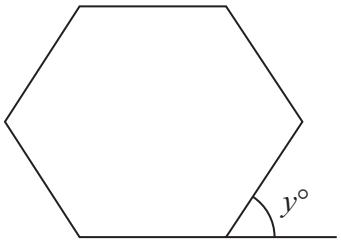

Diagram **NOT** accurately drawn

The diagram shows a regular 6-sided polygon.

(b) Work out the value of y.

y = ...

(2)

2. **[5 marks]**

The diagram shows a regular 5-sided polygon, with centre O.

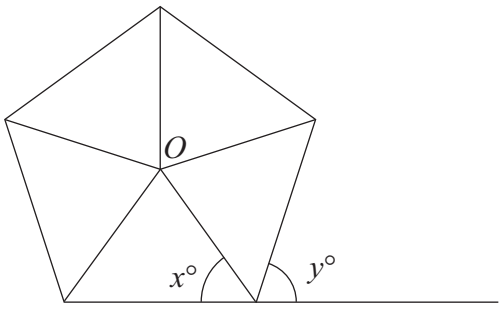

Diagram **NOT** accurately drawn

Work out the value of

(a) x,

$x =$ .....

(3)

(b) y.

$y =$ .....

(2)

3. **[4 marks]**

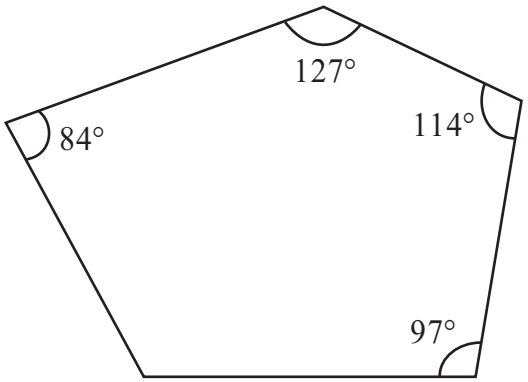

Diagram **NOT** accurately drawn

Four of the angles of a pentagon are 97°, 114°, 127° and 84°.

Work out the size of the fifth angle.

.....°

4. **[2 marks]**

Work out the size of each exterior angle of a regular polygon with 15 sides.

.....°

5. **[5 marks]**

Each exterior angle of a regular polygon is 15°

(a) How many sides has the regular polygon?

.....

(2)

The diagram shows 3 identical regular pentagons.

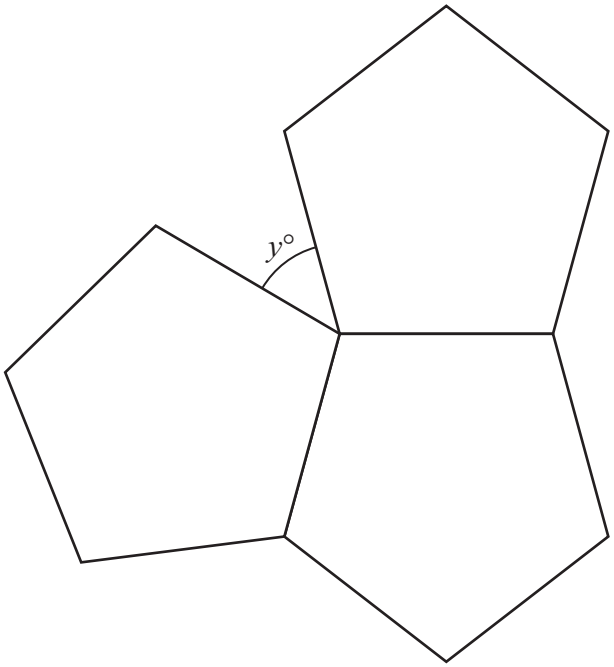

Diagram **NOT** accurately drawn

(b) Work out the value of y.

y = ...

(3)

6. **[5 marks]**

(a) The diagram shows a regular octagon, with centre O.

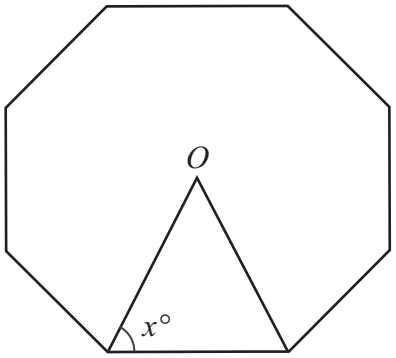

Diagram **NOT** accurately drawn

Work out the value of x.

$x =$ .....

(3)

(b) A regular polygon has an exterior angle of 30°.
Work out the number of sides of the polygon.

.....

(2)

7. **[4 marks]**

(a) Find the sum of the interior angles of a polygon with 7 sides.

.....°

(2)

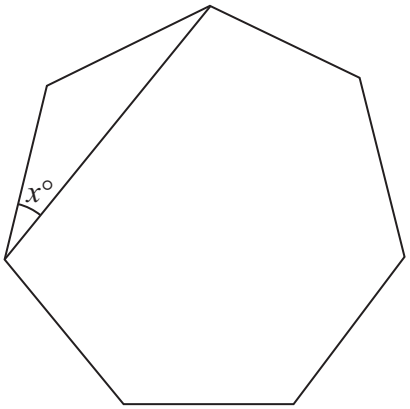

Diagram **NOT** accurately drawn

The diagram shows a regular polygon with 7 sides.

(b) Work out the value of x.
Give your answer correct to 1 decimal place.

.....

(2)

8. **[4 marks]**

The size of each exterior angle of a regular polygon is 18°.

(a) Work out how many sides the polygon has.

.....

(2)

(b) Work out the **sum** of the interior angles of the polygon.

°

.....

(2)

9. **[4 marks]**

The diagram shows an incomplete regular polygon.

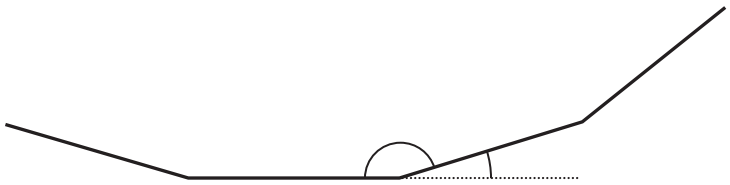

Diagram **NOT** accurately drawn

The size of each interior angle is 140 degrees greater than the size of each exterior angle.

Work out the number of sides the regular polygon has.

.....

10. **[4 marks]**

Here is a regular 10-sided polygon.

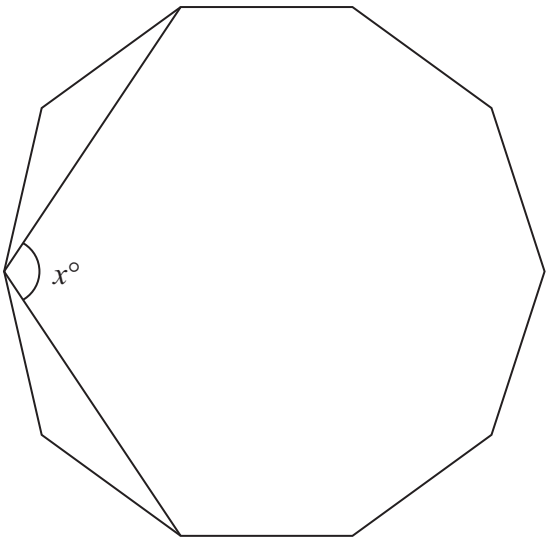

Diagram **NOT** accurately drawn

Work out the value of x.
Show your working clearly.

$x =$ .....

11. **[2 marks]**

Work out the size of an exterior angle of a regular polygon with 8 sides.

.....°

12. **[5 marks]**

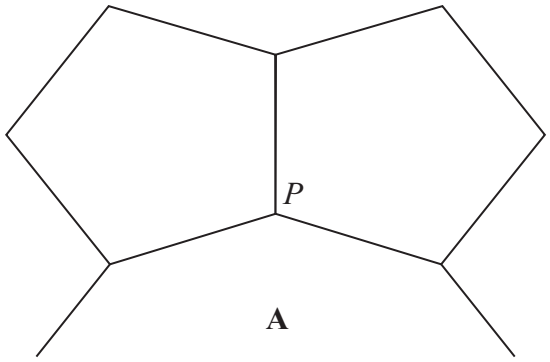

Diagram **NOT** accurately drawn

The diagram shows two congruent regular pentagons and part of a regular n-sided polygon **A**.
Two sides of each of the regular pentagons and two sides of **A** meet at the point P.

Calculate the value of n.
Show your working clearly.

$n =$ .....

13. **[5 marks]**

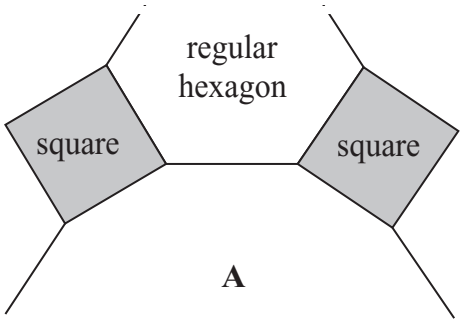

Diagram **NOT** accurately drawn

The diagram shows part of a tiling pattern.
The tiling pattern is made from three shapes.
Two of the shapes are squares and regular hexagons.
The third shape is a regular n-sided polygon **A**.

Work out the value of n.

n = ...

14. **[4 marks]**

The size of each interior angle of a regular polygon is 11 times the size of each exterior angle.

Work out the number of sides the polygon has.

.....

15. **[5 marks]**

The size of each interior angle of a regular polygon with n sides is 140°

Work out the size of each interior angle of a regular polygon with $2n$ sides.

.....°

16. **[5 marks]**

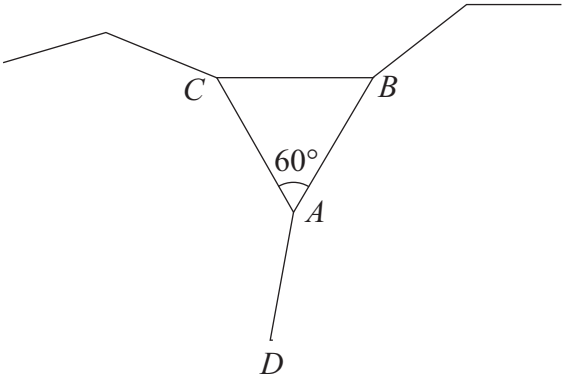

Diagram **NOT** accurately drawn

The sides of an equilateral triangle ABC and two **regular** polygons meet at the point A.
AB and AD are adjacent sides of a regular 10-sided polygon.
AC and AD are adjacent sides of a regular n-sided polygon.

Work out the value of n.

$n =$ .....

17. **[3 marks]**

Diagram **NOT** accurately drawn

The diagram shows part of a regular polygon.
The interior angle and the exterior angle at a vertex are marked.
The size of the interior angle is 7 times the size of the exterior angle.

Work out the number of sides of the polygon.

.....