

Angles in Polygons

For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

Total marks: **22**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. Diagrams are not drawn accurately.

- 1** Circle the sum of the interior angles of a hexagon.

[1 mark]

360°

540°

720°

1080°

- 2** Work out the size of each exterior angle of a regular hexagon.

[1 mark]

Answer _____ degrees

- 3** Callum splits a hexagon into triangles by drawing all the diagonals from one vertex.

He says,

‘This makes 6 triangles, so the angles in a hexagon add up to $6 \times 180^\circ = 1080^\circ$ ’

Is he correct? Tick a box.

Give a reason for your answer.

[1 mark]

☐

Yes

☐

No

- 4** The exterior angles of a regular polygon are all 24°
Work out the total of all the interior angles of this polygon.

[2 marks]

Answer _____ degrees

- 5** Each exterior angle of a regular polygon is 40°
Priti says,
‘So each interior angle is $360^\circ - 40^\circ = 320^\circ$ ’

- (a) Is Priti correct? Tick a box.
Give a reason for your answer.

[1 mark]

☐

Yes

☐

No

- (b) Work out the number of sides of the polygon.

[1 mark]

Answer _____

- 6** Work out the size of an interior angle of a regular pentagon.

[2 marks]

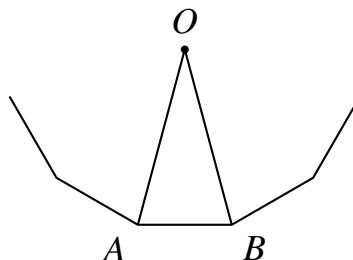
Answer _____ degrees

- 7 The angles of a pentagon are
 100° 120° 95° 110° x
Work out the size of angle x .

[2 marks]

Answer _____ degrees

- 8 Part of a regular polygon with 12 sides is shown.
 O is the centre of the polygon.
 A and B are vertices of the polygon.



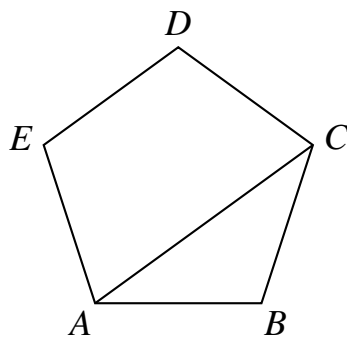
Not drawn accurately

Work out the size of angle OAB .

[2 marks]

Answer _____ degrees

- 9 $ABCDE$ is a regular pentagon.



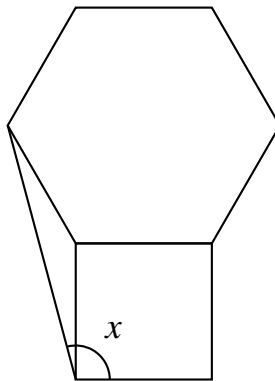
Not drawn accurately

Work out the size of angle ACD .

[3 marks]

Answer _____ degrees

- 10** The diagram shows a regular hexagon and a square.
They share a side.
A straight line joins a vertex of the hexagon to a vertex of the square.



Not drawn accurately

Work out the size of angle x .

[3 marks]

Answer _____ degrees

- 11** A regular polygon has n sides.
The value of n increases.

(a) Tick **one** box for each statement.

[2 marks]

	True	False
Each exterior angle gets smaller.	☐	☐
Each interior angle gets smaller.	☐	☐
The sum of the interior angles gets bigger.	☐	☐
The sum of the exterior angles gets bigger.	☐	☐

- (b) Explain why a regular polygon cannot have an interior angle of 180°

[1 mark]
