

Angles in Parallel Lines and Polygons - Higher

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **29**

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

- 1** What is the sum of the interior angles of a hexagon?
Circle your answer.

[1 mark]

360°

540°

720°

1080°

- 2** The interior angle of a regular polygon is 156°
How many sides does the polygon have?

[2 marks]

Answer _____

- 3** The sum of the interior angles of a polygon is 1980°
How many sides does the polygon have?

[2 marks]

Answer _____

- 4 Is it possible for a regular polygon to have an interior angle of 130° ? Tick a box.
You must show your working.

[2 marks]

☐ Yes

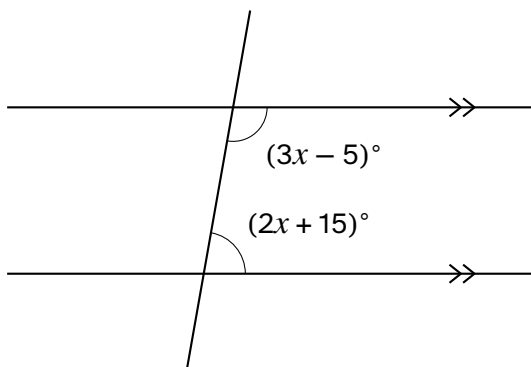
☐ No

- 5 The angles of a pentagon are x , $2x$, $2x + 10$, 110° and 120°
Work out the size of the largest angle.

[3 marks]

Answer _____ degrees

- 6 The diagram shows two parallel lines crossed by a transversal.



Not drawn accurately

Work out the value of x .
Give reasons for your answer.

[3 marks]

- 7** Rhian says,
“The more sides a regular polygon has, the bigger each exterior angle is.”

(a) Work out the size of an exterior angle of a regular polygon with 12 sides.

[1 mark]

Answer _____ degrees

(b) Work out the size of an exterior angle of a regular polygon with 18 sides.

[1 mark]

Answer _____ degrees

(c) Is Rhian correct?

Tick one box and give a reason for your answer.

[1 mark]

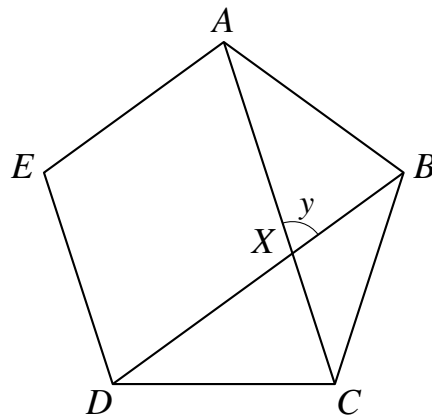
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Yes

☐

No

- 8 Here is a regular pentagon.



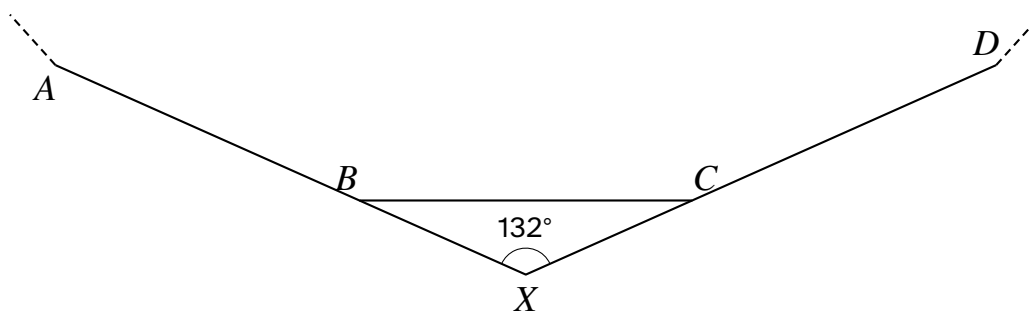
Not drawn accurately

$ABCDE$ is a regular pentagon.
The diagonals AC and BD meet at X .
Work out the size of angle y .

[3 marks]

$y =$ _____ degrees

- 9 AB , BC and CD are three sides of a regular polygon.
The sides AB and DC are extended to meet at X .



Not drawn accurately

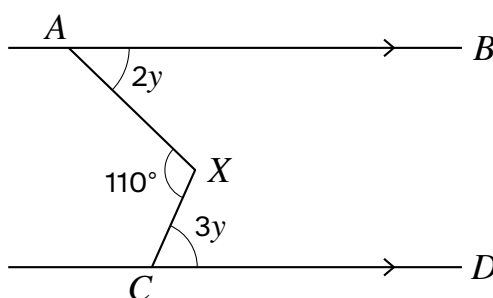
Angle $BXC = 132^\circ$

Work out the number of sides of the polygon.

[3 marks]

Answer _____

- 10 AB and CD are parallel lines.
 A , X and C are joined to make the angles shown.



Not drawn accurately

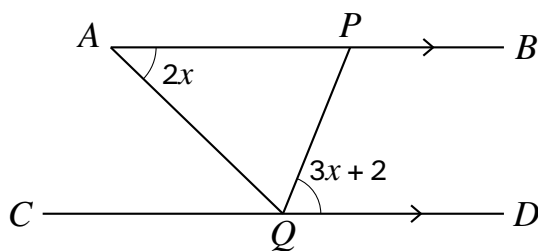
Angle $AXC = 110^\circ$

Work out the size of angle DCX .

[3 marks]

Answer _____ degrees

- 11 AB and CD are straight, parallel lines.
 P is a point on AB . Q is a point on CD .
 $AP = AQ$



Not drawn accurately

Work out the value of x .

[4 marks]

$x =$ _____ degrees