

Angles in Parallel Lines and Polygons - Higher

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **25**

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

- 1** A regular polygon has 20 sides.
- (a) Work out the size of each exterior angle.

.....°
(1)

- (b) Work out the size of each interior angle.

.....°
(1)

(Total for Question 1 is 2 marks)

- 2** The ratio of the exterior angle to the interior angle of a regular polygon is 1:4
Work out the number of sides of the polygon.

.....
(3)

(Total for Question 2 is 3 marks)

- 3 The interior angles of a hexagon are x° , $(x + 10)^\circ$, $(x + 20)^\circ$, $(x + 30)^\circ$, $(x + 40)^\circ$ and $(x + 50)^\circ$
Show that the smallest angle is 95°

(3)

(Total for Question 3 is 3 marks)

- 4 ABC and DEF are parallel lines. BE is a straight line.

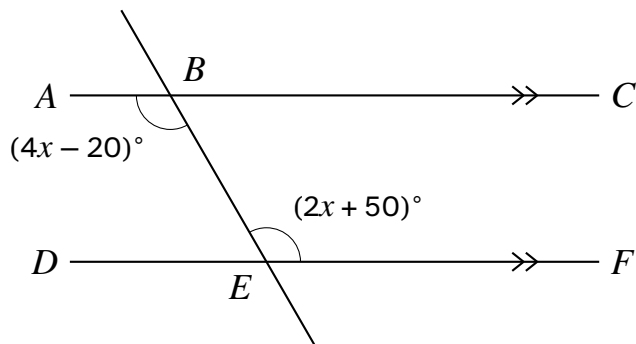


Diagram **NOT** accurately drawn

Work out the value of x .
Give a reason for your answer.

$x = \dots\dots\dots$

(3)

(Total for Question 4 is 3 marks)

- 5 $ABCDE$ is a regular pentagon.
 ABF is an equilateral triangle, with F inside the pentagon.

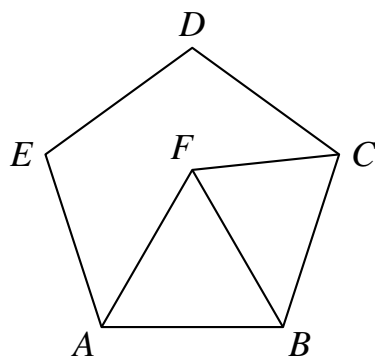


Diagram **NOT** accurately drawn

Work out the size of angle BFC .
 You must show all your working.

.....°
 (3)

(Total for Question 5 is 3 marks)

- 6 AB , BC and CD are three sides of a regular polygon.
The sides AB and DC are extended to meet at X .
Angle $BXC = 140^\circ$

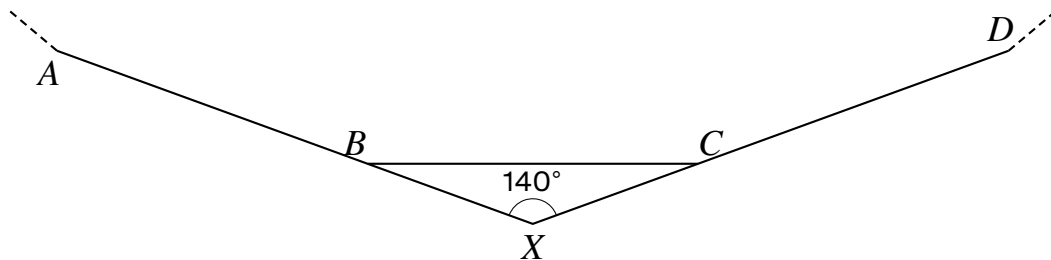


Diagram **NOT** accurately drawn

Work out the number of sides of the polygon.
You must show all your working.

.....

(3)

(Total for Question 6 is 3 marks)

- 7 ABC is an isosceles triangle with $AB = AC$.
 PAQ is a straight line, parallel to BC .
 Angle $PAB = 52^\circ$

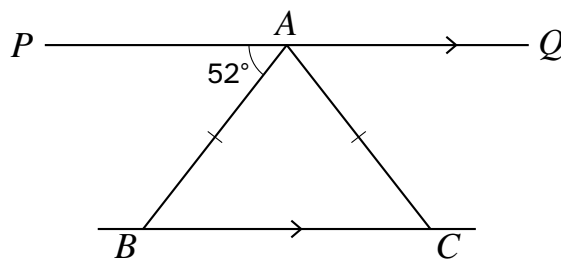


Diagram **NOT** accurately drawn

Work out the size of angle BAC .
 Give a reason for each stage of your working.

.....^o
 (4)

(Total for Question 7 is 4 marks)

- 8 A, B, C and D are four vertices next to each other on a regular polygon with n sides.
 AC is a straight line.
Angle $BAC = 12^\circ$

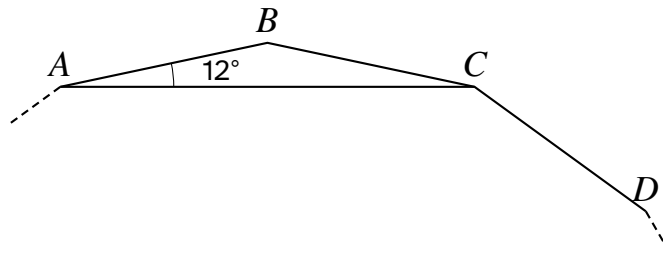


Diagram **NOT** accurately drawn

Work out the value of n .
You must show all your working.

$n = \dots\dots\dots$
(4)

(Total for Question 8 is 4 marks)
