



THIRD SPACE
LEARNING

GCSE Exam Questions

Angles in Polygons | Geometry
& Measure

GCSE Exam Questions: Angles in Polygons

- 1) (a) Each exterior angle of a regular polygon is 15° . Work out the number of sides the polygon has.

(2)

- (b) In a different regular polygon each interior angle is 140° . Show that this polygon has 9 sides.

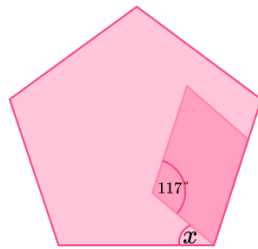
(2)

- (c) In a different regular polygon each exterior angle is 18° . Find the sum of interior angles for this polygon.

(3)

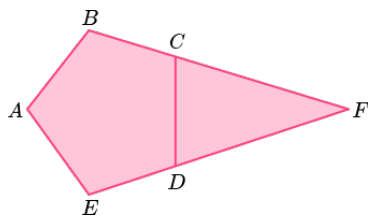
(7 marks)

- 2) The diagram shows a regular pentagon and a parallelogram. Work out the size of the angle marked x . You must show all your working.



(4 marks)

- 3) $ABCDE$ is a regular pentagon where BCF and EDF are straight lines. Work out the size of the acute angle CFD .



(3 marks)

GCSE Exam Questions: Angles in Polygons

- 4) A and B are two different regular polygons. A has 9 sides.

One exterior angle of A is 30° larger than one exterior angle of B .

Find the number of sides of B .

(2 marks)

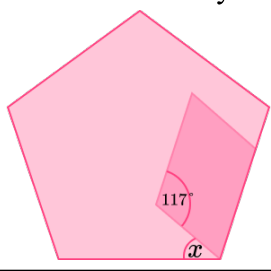
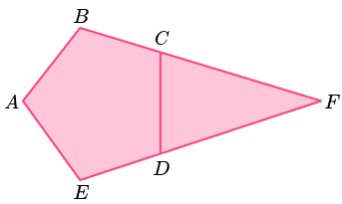
- 5) M and N are two regular polygons. M has 10 sides, with an exterior angle of $3x$. N has an exterior angle of $2x$. How many sides does N have?

(4 marks)

- 6) A regular polygon has interior angles that are 5 times larger than each of its exterior angles. Calculate how many sides it has.

(5 marks)

GCSE Exam Questions: Angles in Polygons Answers

	Question	Answer	Marks
1) (a)	Each exterior angle of a regular polygon is 15° . Work out the number of sides the polygon has.	(a) $360 \div 15$ 24	(1) (1)
(b)	In a different regular polygon each interior angle is 140° . Show that this polygon has 9 sides.	(b) Exterior angle = 40° seen or implied $360 \div 40 = 9$	(1) (1)
(c)	In a different regular polygon each exterior angle is 18° . Find the sum of interior angles for this polygon.	(c) $360 \div 18$ or 20° 180×18 oe 3240	(1) (1) (1)
2)	The diagram shows a regular pentagon and a parallelogram. Work out the size of the angle marked x . You must show all your working. 	$180 - 117 = 63^\circ$ $\frac{3 \times 180}{5} = 108^\circ$ $108 - 63$ 45°	(1) (1) (1) (1)
3)	$ABCDE$ is a regular pentagon where BCF and EDF are straight lines. Work out the size of the acute angle CFD . 	$\frac{3 \times 180}{5} = 108^\circ$ $180 - 108$ or 72° seen $180 - 144 = 36^\circ$	(1) (1) (1)
4)	A and B are two different regular polygons. A has 9 sides. One exterior angle of A is 30° larger than one exterior angle of B . Find the number of sides of B .	$360 \div 9 = 40$ $360 \div 10 = 36$	(1) (1)

GCSE Exam Questions: Angles in Polygons Answers

	Question	Answer	Marks
5)	<i>M</i> and <i>N</i> are two regular polygons. <i>M</i> has 10 sides, with an exterior angle of $3x$. <i>N</i> has an exterior angle of $2x$. How many sides does <i>N</i> have?	$180 - 180(10 - 2) = 36^\circ$ or $360 \div 10 = 36^\circ$ $3x = 36$ or implied by $x = 12$ or $2x = 24$ $360 \div 24$ 15 sides	(1) (1) (1) (1)
6)	A regular polygon has interior angles that are 5 times larger than each of its exterior angles. Calculate how many sides it has.	$x + 5x = 180^\circ$ oe $6x = 180^\circ$ oe $x = 30^\circ$ oe $360 \div 30$ 12 sides	(1) (1) (1) (1) (1)