Angles in Polygons

IGCSE Maths · Grades 9–10 · British and American curriculum · About 20 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTISE

- Find the sum of the interior angles of a polygon
- Find interior and exterior angles of regular polygons
- Find the number of sides from an interior or exterior angle

WORKED EXAMPLE

Find the size of each interior angle of a regular nonagon (9 sides).

1. Use the angle sum formula: $(n - 2) \times 180° = (9 - 2) \times 180° = 1260°$.
2. A regular polygon has equal angles, so divide by the number of sides: $1260° \div 9$.
3. Each interior angle is $140°$.

Answer: $140°$

Questions

Show your working in the space under each question.

1. Find the sum of the interior angles of a pentagon

2. Find the sum of the interior angles of a hexagon

3. Find the size of each interior angle of a regular octagon

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4. Find the size of each exterior angle of a regular pentagon

5. Each exterior angle of a regular polygon is 30°. How many sides does it have?

6. Each interior angle of a regular polygon is 160°. How many sides does it have?

7. Four angles of a pentagon are 100°, 110°, 120° and 95°. Find the fifth angle.

8. Find the size of each interior angle of a regular decagon (10 sides)

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Answers: Angles in Polygons

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	Find the sum of the interior angles of a pentagon	**540°**
2	Find the sum of the interior angles of a hexagon	**720°**
3	Find the size of each interior angle of a regular octagon	**135°**
4	Find the size of each exterior angle of a regular pentagon	**72°**
5	Each exterior angle of a regular polygon is 30°. How many sides does it have?	**12**
6	Each interior angle of a regular polygon is 160°. How many sides does it have?	**18**
7	Four angles of a pentagon are 100°, 110°, 120° and 95°. Find the fifth angle.	**115°**
8	Find the size of each interior angle of a regular decagon (10 sides)	**144°**

TUTOR TIP

The exterior angles of any polygon add up to 360°. For a regular polygon it is often quicker to find the exterior angle first.

Stuck on a question? Work through it live with a tutor.

YFCampus offers one-to-one online Maths tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/qa**

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