

Definitions:

Polygon: 'A shape with straight sides'

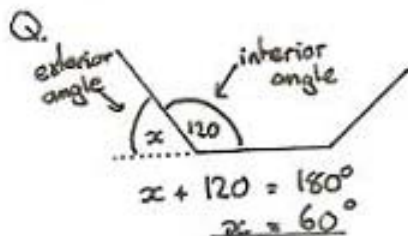
Regular: 'All angles and sides are the same size'

Interior angles: 'Angles inside a shape'

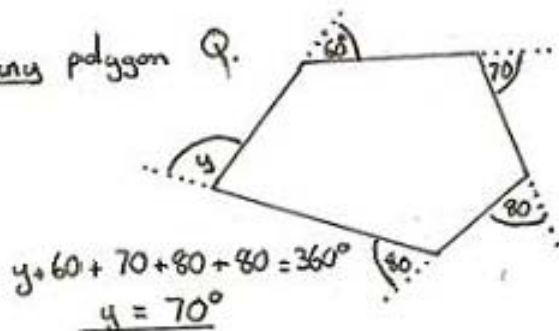
Exterior angles: 'Angles round/outside the shape'

Useful information:

- ① Interior angles and Exterior angles add up to 180°



- ② Exterior angles in any polygon add up to 360°



- ③ To work out the sum of the interior angles in any shape
(no. of sides - 2) \times 180°

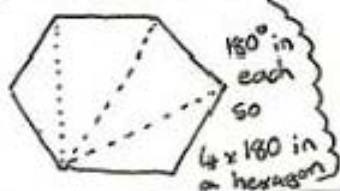
Q. What is the sum of the interior angles of a Hexagon?

A Hexagon has 6 sides
so:

$$(6 - 2) \times 180^\circ =$$

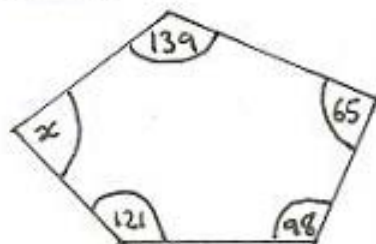
$$4 \times 180^\circ = \underline{720^\circ}$$

you can split shapes into triangles



Exam Questions

Question 1:



Work out missing angle x .

Answer 1:

Work out how many degrees in a Pentagon (5 sides)
 $(5 - 2) \times 180 = 540^\circ$

So, the interior angles must add up to 540° . $139 + 121 + 65 + 98 = 427$

$$540 - 427 = \underline{113^\circ}$$

Question 2:

A regular polygon has 12 sides. Work out the size of the exterior and interior angles of this polygon.

Answer 2:

Exterior angles add up to 360° . There are 12 of them and they are all the same.

$$\text{Exterior} = 360 \div 12 = \underline{30^\circ}$$

$$\text{Exterior} + \text{Interior} = 180^\circ$$

$$\text{Interior} \times 180 - 30 = \underline{150^\circ}$$

Question 3:

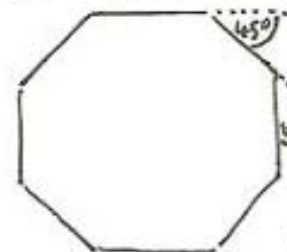
A regular polygon has exterior angles of 45° .

Work out how many sides this polygon has

Answer 3:

Exterior angles add up to 360° .

$$360^\circ \div 45^\circ = \underline{8}$$



If you go 45° round the shape 8 times you've gone round in a circle (360°)