

Key concepts and questions

How can a missing side be found?

Make use of known and related facts.

The perimeter of this shape is 36cm.  4cm

- If the short side equals 4cm, then so does its opposite side. In total, the short sides equal 8cm, so subtract this from the perimeter.  $36\text{cm} - 8\text{cm} = 28\text{cm}$ . The total of the two longer lengths is 28cm.

-  $a = \frac{1}{2}$  of  $28\text{cm} = 14\text{cm}$ .

How can a missing angle be calculated?

Make use of known and related facts.

The angles in a regular hexagon add up to  $720^\circ$ .

In a regular shape, each angle is equal.

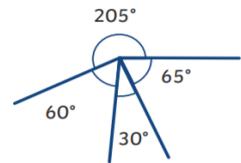
There are 6 angles in a hexagon, so  $720^\circ$  is shared between 6.  $720^\circ \div 6 = 120^\circ$ . So, each angle is  $120^\circ$ .



Key Vocabulary

Rectilinear Shape	A shape where each edge meets at 90 degrees
Length	How long each side of a shape is
Angles	Right angle - $90^\circ$ Acute angle - less than $90^\circ$ Obtuse angle - between 90 and $180^\circ$ Reflex angle - between 180 and $360^\circ$ Angles on a straight line = $180^\circ$ Angles around a point = $360^\circ$
Degrees	Unit of measure for angles
Deduce	To work something out from related facts
Related Facts	Being able to work something out from a fact that is related to another, e.g. knowing the opposite sides in a rectangle are of equal length.

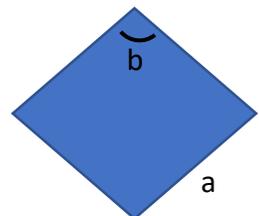
Representations



Angles around a point always equal  $360^\circ$ .

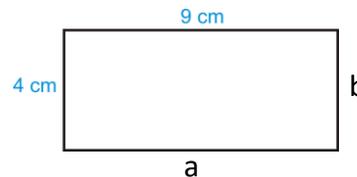


Angles on a straight line always equal  $180^\circ$ .

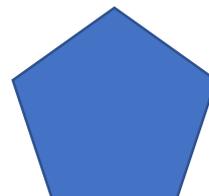


We use letters to represent missing lengths and angles.

Making connections



Opposite sides on a rectangle are equal, so  $a = 9\text{cm}$  and  $b = 4\text{cm}$



In a regular shape, each side is the same length and each angle is equal. If you know one side is 5 cm, you know each side is 5cm, and if one angle is  $108^\circ$  then each angle is  $108^\circ$ .

Prior learning

- Measuring angles
- Right angles
- Properties of 2D shapes
- Regular and irregular shapes
- Using the inverse e.g. the inverse of + is - , the inverse of - is +, the inverse of  $\times$  is  $\div$  and the inverse of  $\div$  is  $\times$