

Perimeter of polygons

Notes and guidance

In this small step, children learn the word “irregular” to describe polygons that are not regular. Show children a range of irregular shapes to help them to identify that either the lengths or angles, or both, are not all equal. In this step, children are exposed to examples of polygons in which the lengths are equal but angles are not, and this is an important discussion point.

Children continue to add the side lengths together to find the perimeter. Encourage children to use number bonds to add related sides (for example, $4\text{ cm} + 6\text{ cm} = 10\text{ cm}$) when working out the perimeter, as this will make calculating more efficient. They also use symmetry and properties of shapes to label lengths that are not given to help them calculate perimeters of shapes that are partially labelled.

Children should still label and mark sides as they are working out perimeters to help avoid errors.

Things to look out for

- Children may try to measure unknown sides rather than use the given information to work out the lengths.
- When finding the perimeter of a more complex shape, children may omit some of the sides, or count them more than once.

Key questions

- What is the difference between a regular and an irregular polygon?
- Is the shape irregular? How do you know?
- How can you work out the perimeter of the shape?
- Are any of the sides the same length?
- What is the length of each side?
- How can you work out the perimeter more efficiently?
- If the shape is symmetrical, how can this help you to work out some of the missing side lengths?

Possible sentence stems

- The shape is regular/irregular because ...
- There are _____ sides, so I need to add together _____ lengths to work out the perimeter.
- The calculation I need to do to work out the perimeter is ...

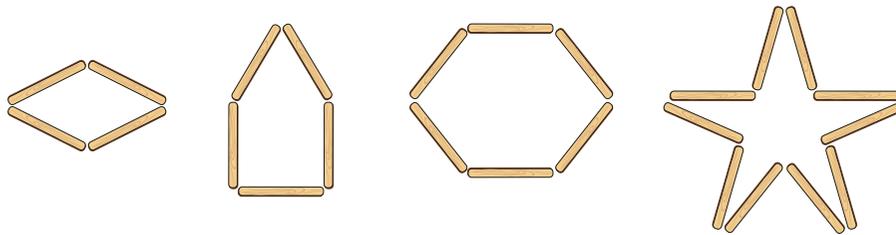
National Curriculum links

- This small step is not taken from the Year 4 National Curriculum. It is included to take into account the non-statutory DfE Ready to Progress guidance.

Perimeter of polygons

Key learning

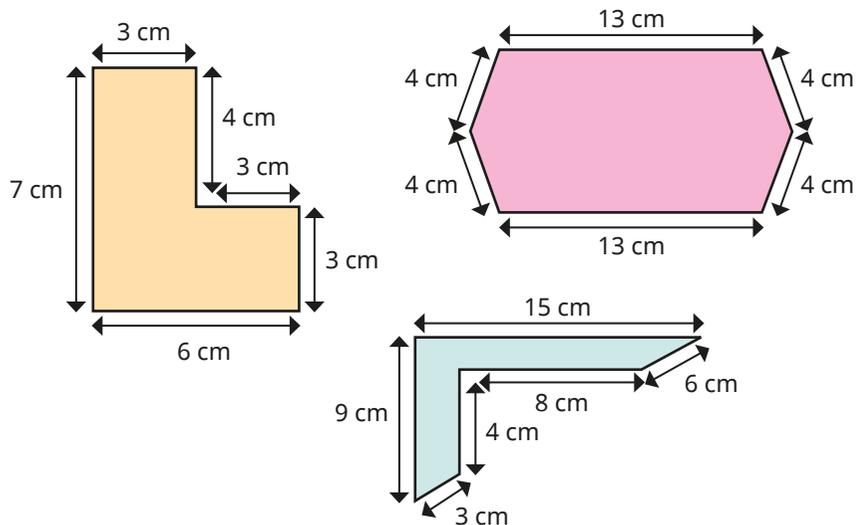
- Mo uses lolly sticks to make some polygons. Each stick is 6 cm long.



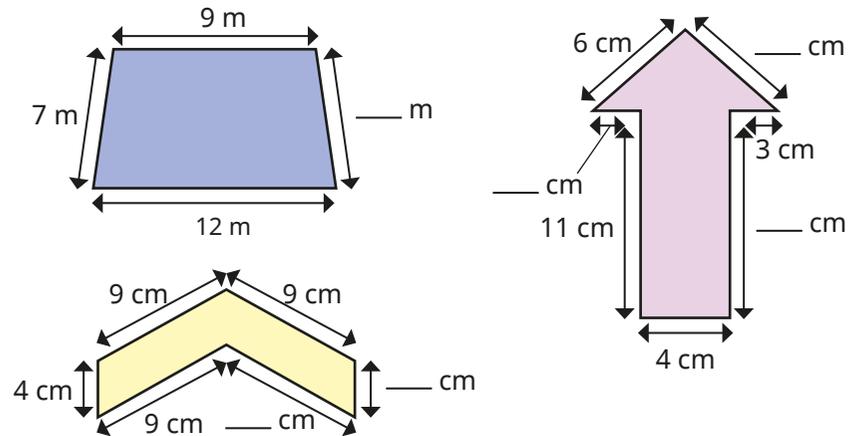
Work out the perimeters of the shapes.

Are any of the shapes regular? How can you tell?

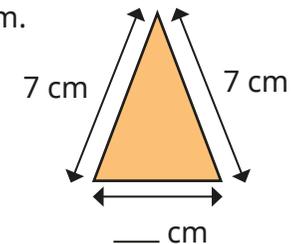
- Work out the perimeters of these hexagons.



- All the shapes have one line of symmetry. Work out the perimeters of the shapes.



- The perimeter of this triangle is 19 cm. Work out the unknown length.

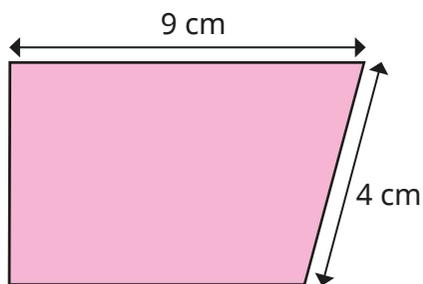
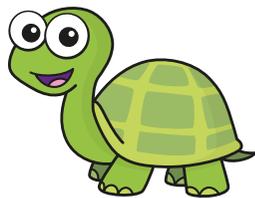


- The perimeter of a rectangle is 22 cm. The length of the rectangle is 8 cm. Work out the width of the rectangle.

Perimeter of polygons

Reasoning and problem solving

I have enough information to work out the perimeter of this shape.



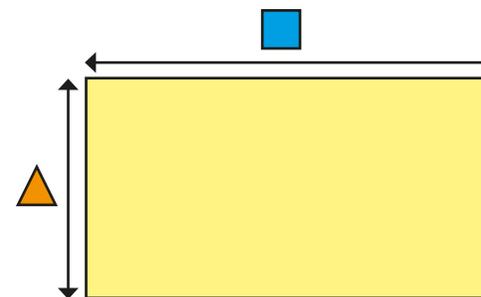
Do you agree with Tiny?
Explain your answer.

No

The perimeter of a rectangle is 18 cm.

Each side is a whole number of centimetres.

The side marked is longer than the side marked .



- = 8, = 1
- = 7, = 2
- = 6, = 3
- = 5, = 4

What could be the lengths of and .

Find as many possibilities as you can.

What do you notice?