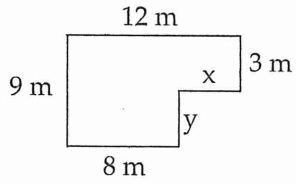
3.3 Perimeter

Perimeter

Perimeter is the distance around the outside of a two-dimensional shape.

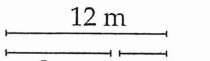
To find the perimeter of a shape we find the length of each side of the shape and add them together.

Sometimes when you are asked to find the perimeter of a shape not all lengths will have a measurement alongside. Consider the shape on the right.

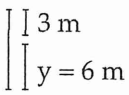


There are six sides on the shape, but only four have measurements, so we need to calculate the two missing lengths.

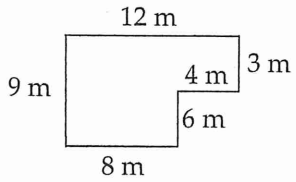
Length $x = 12 - 8$
$= 4$ m



and $y = 9 - 3$
$= 6$ m



The shape with all sides labelled is:



To calculate the perimeter we add all the lengths together.

Perimeter(shape) $= 12 + 3 + 4 + 6 + 8 + 9$
$= 42$ m

Morena whānau.
A bit of revision on Perimeter – the measurement around the outside. Unless it says otherwise all measurements are in cm.

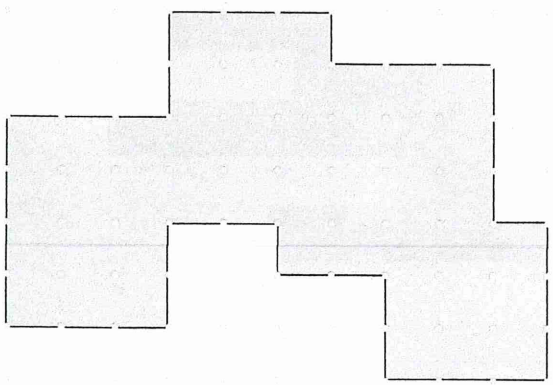
For those who want a challenge how many shapes can you ~~calculate~~ Calculate the AREA and the Perimeter?

Remember AREA is what you paint on the inside and is measured in cm^2.

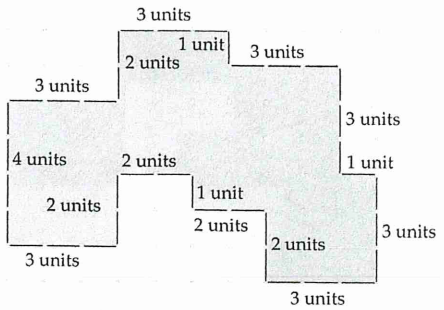
Enjoy Whaea Mel.

Example

Find the perimeter of the following shape.



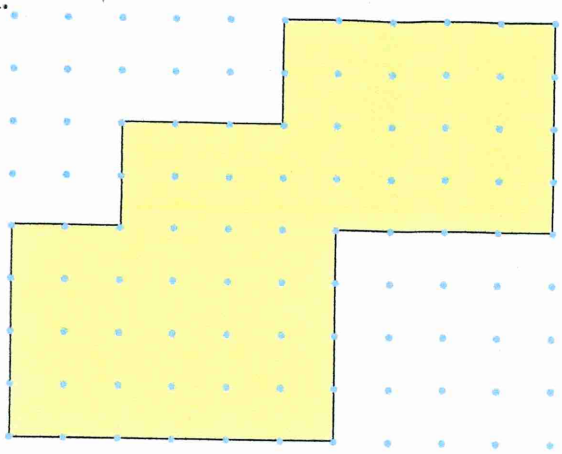
We begin by labelling the length of each side of the shape and then add all the lengths together.



Perimeter(shape) $= 3 + 1 + 3 + 3 + 1 + 3 + 3 + 2 + 2 + 1$
$+ 2 + 2 + 3 + 4 + 3 + 2$
$= 38$ units

Achievement – Find the perimeter of each of the following shapes.

121.



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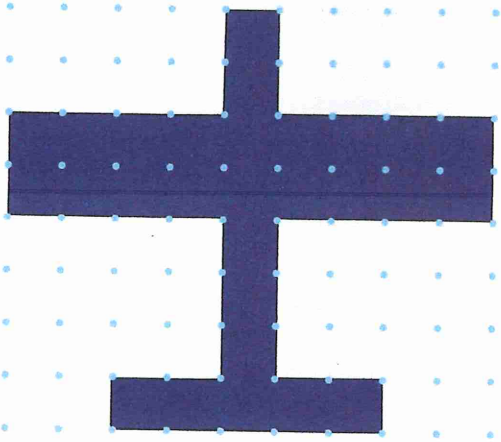

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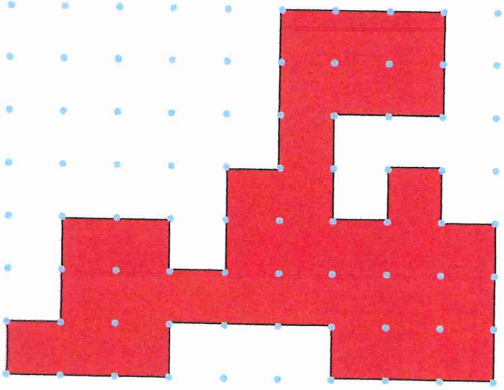

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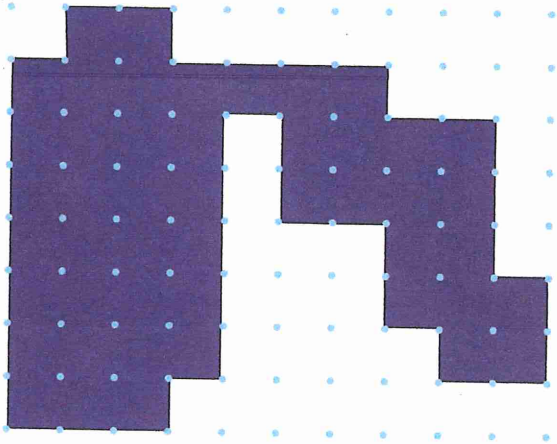

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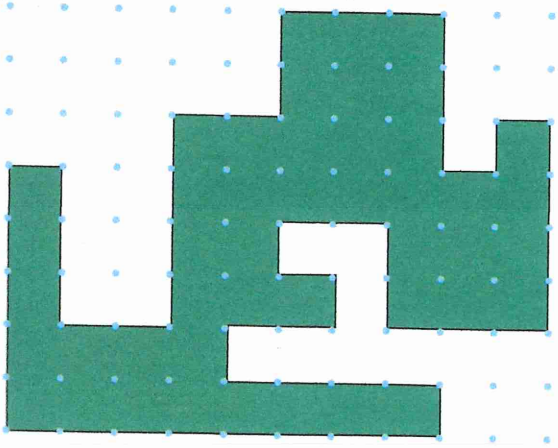

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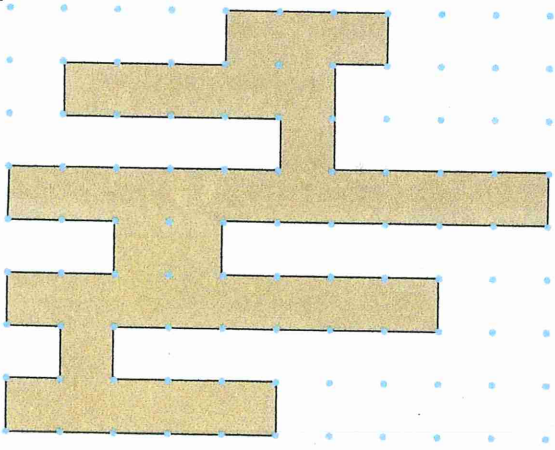
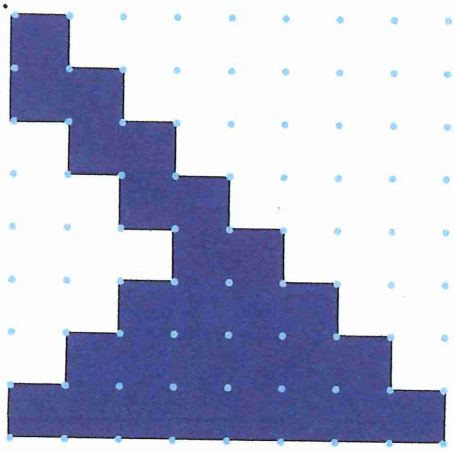
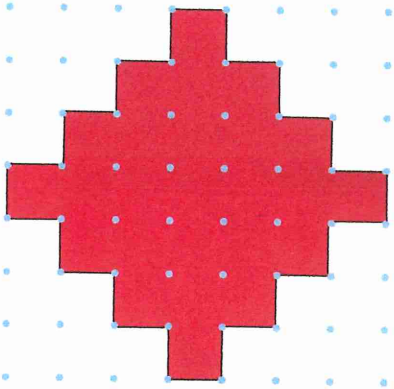


Achievement – Find the perimeter of each of the following shapes.

127.



128.



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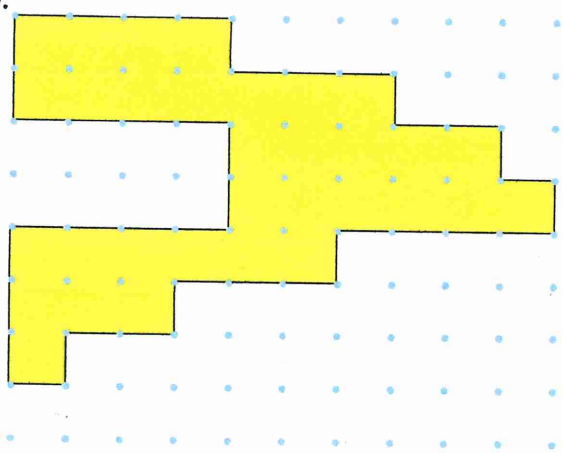

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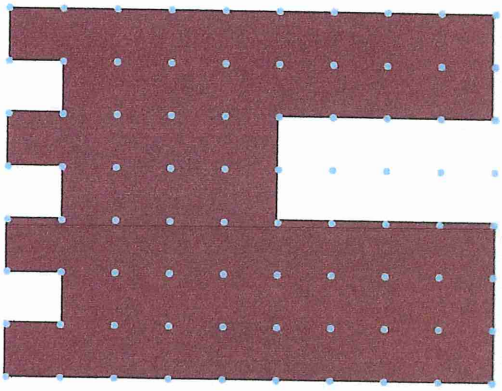

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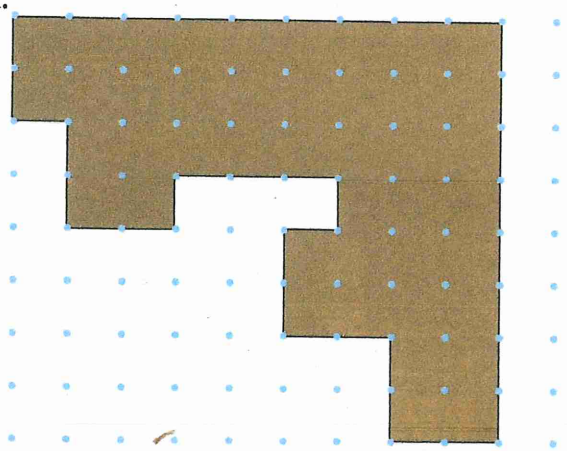

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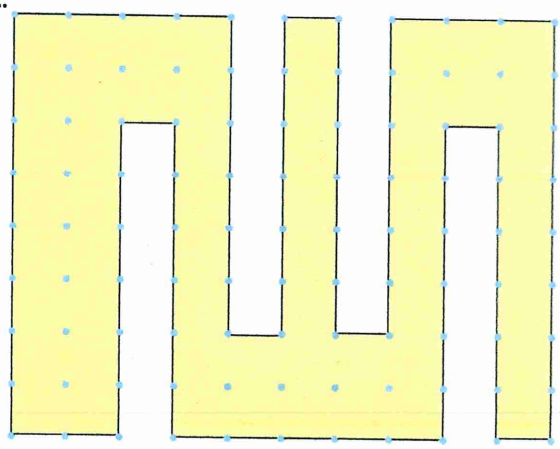
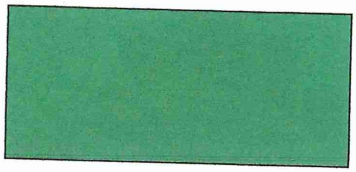
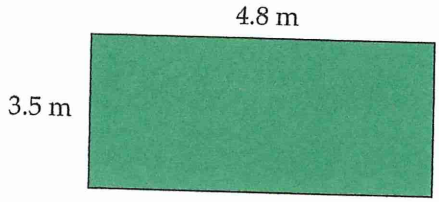


Example

Find the perimeter of the following shape.



We begin by labelling the length of those sides which are missing.



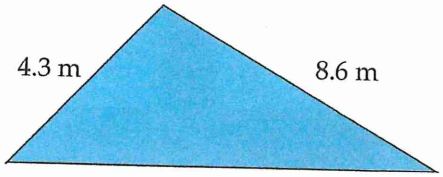
We now sum the four sides.

Perimeter(rectangle) = 4.8 + 3.5 + 4.8 + 3.5

= 16.6 m

Example

Find the perimeter of the following shape.



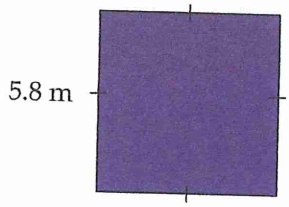
We sum the three sides of the triangle.

Perimeter(triangle) = 10.5 + 8.6 + 4.3

= 23.4 m

Achievement – Find the perimeter of each of the following shapes.

133.



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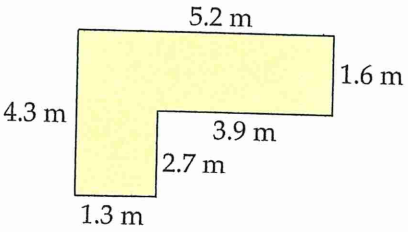

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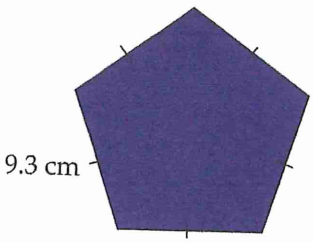

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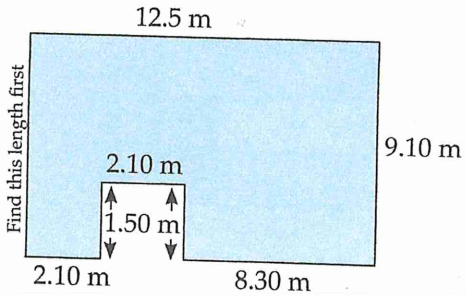

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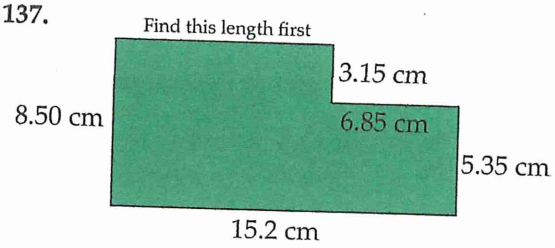

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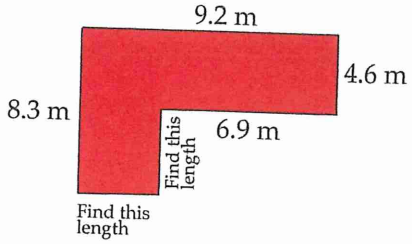

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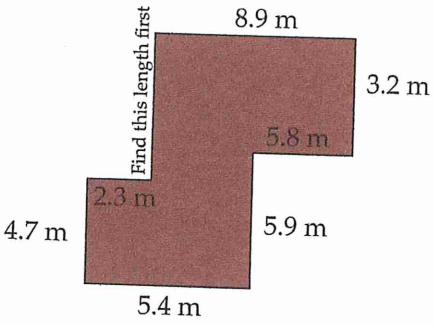
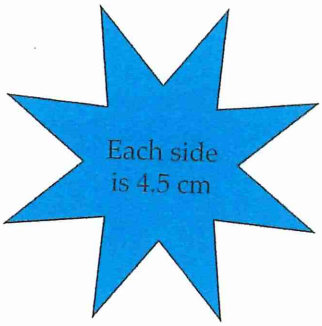


140.



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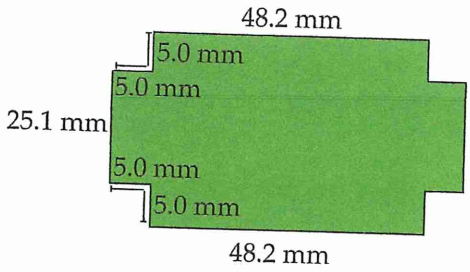
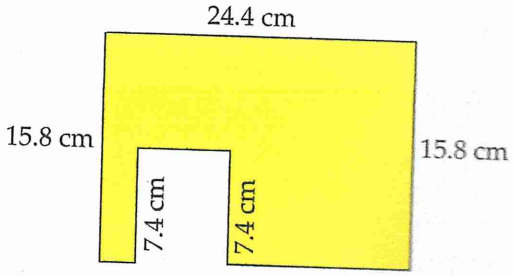
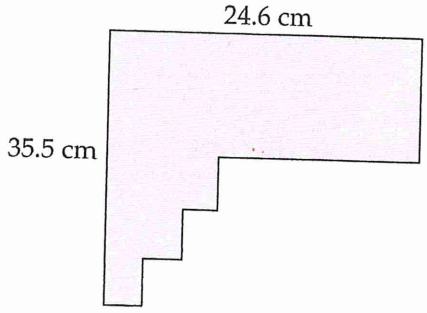


Note: The figure is symmetrical

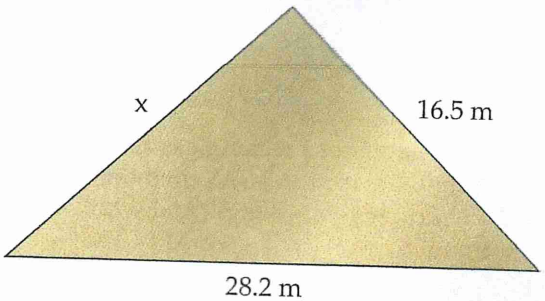
142.



143.



144.



The perimeter of the figure is 62.6 m, find x.

Merit – For each question below draw the described figure and then work out the answer.

145. A sheet of A4 paper measures 21 cm by 30 cm. What is its perimeter?

146. A square chessboard has a perimeter of 144 cm. What is the length of each side?

147. Tina wants to fence off a triangular area for her dog to run. The lengths of the triangle are 24 m, 18 m and 16 m. Find the perimeter of the dog run.

148. A five pointed star is cut from cardboard. Each length of the star measure 8.5 cm. What is the perimeter of the star?

149. A rectangular swimming pool measures 18 m by 12 m and has a 2 m wide paved path all the way around. What length of fencing is needed to fence the pool and paved area?

150. Two pieces of cardboard, one square and the other an equilateral triangle have the same perimeter of 36 cm. What is the length of each side of the square and each side of the triangle?

151. An isosceles triangle has a perimeter of 60 cm. The base length of the triangle is 10 cm. What are the other two lengths?

152. A swimming pool is twice as long as it is wide. If its length is 50 metres what is its perimeter?

153. The perimeter of a rectangle is 38 cm. The length of the rectangle is 3 cm more than the width. Find the length and width of the rectangle.

154. A rectangular garden has length twice its width. The perimeter of the garden is 54 m. What is its perimeter?