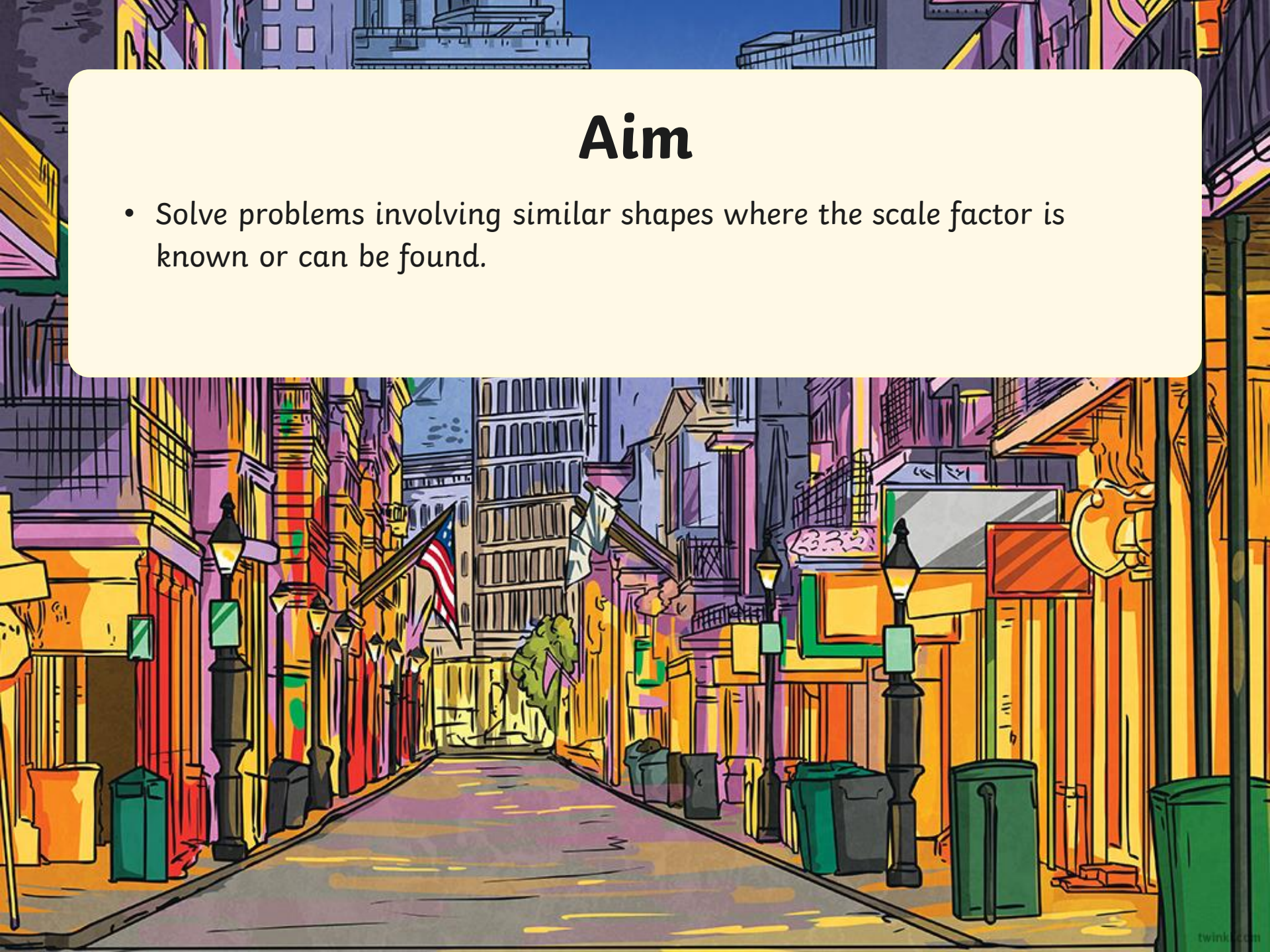
Diving into Mastery



Using Scale Factors



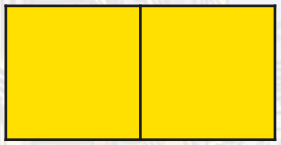
Aim

- Solve problems involving similar shapes where the scale factor is known or can be found.

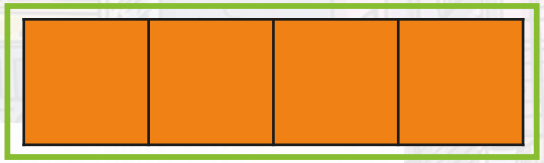
Using Scale Factors | **Diving**

This rectangle has been doubled in size.

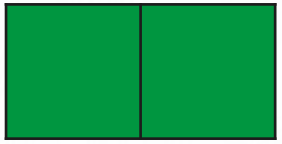
Which are the correct representations of this?



a)



b)



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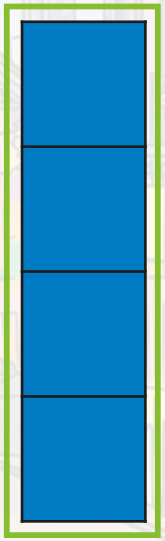
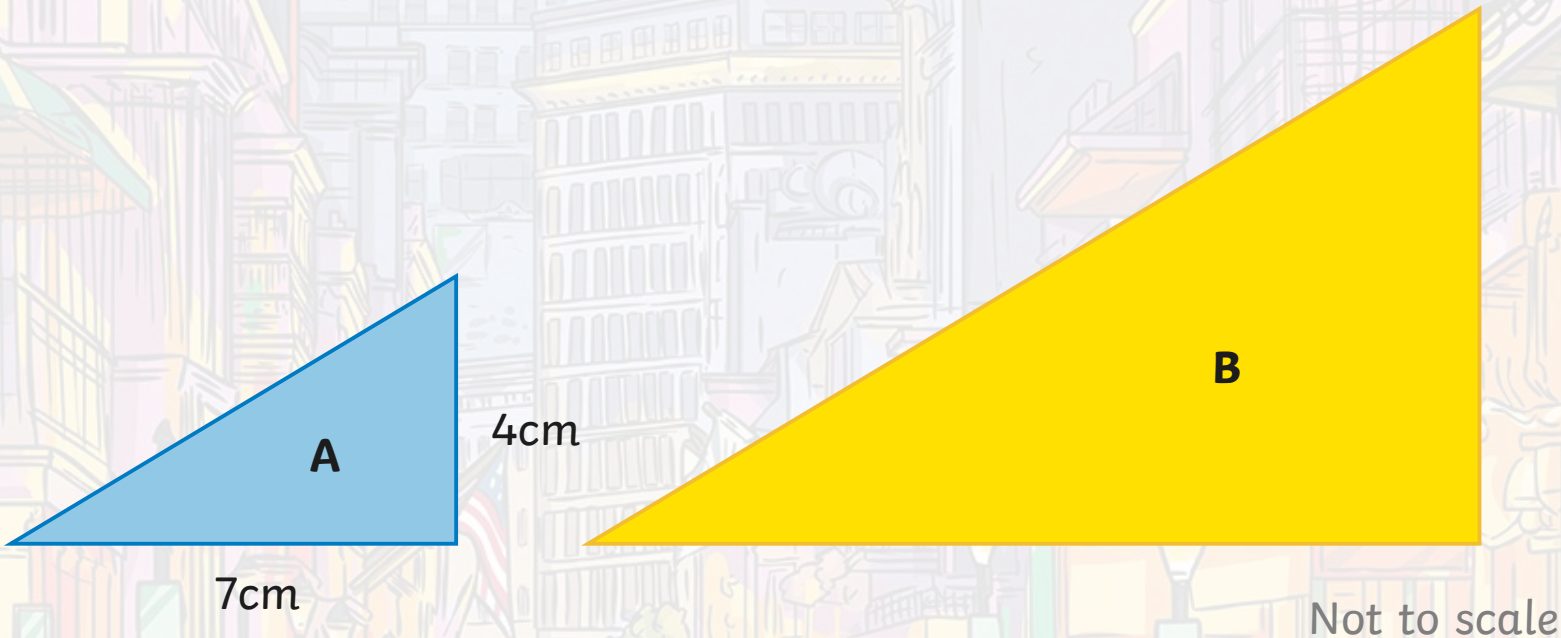




Using Scale Factors | **Diving**

Shape A has been enlarged by a scale factor of 2.



Not to scale

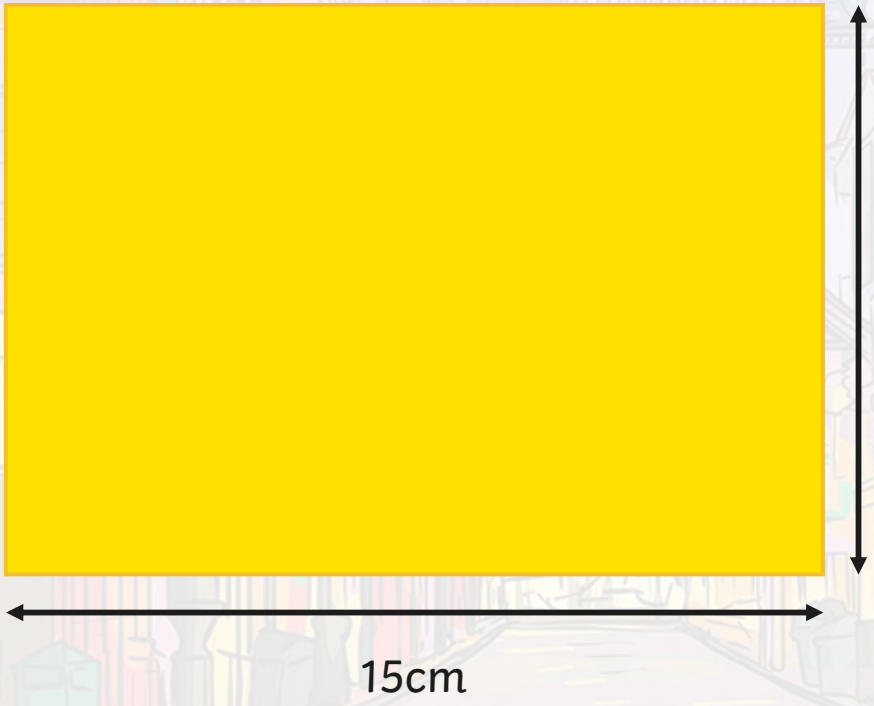
What are the new dimensions of Shape B?

Width: 9cm Height: 8cm	Width: 9cm Height: 6cm	Width: 14cm Height: 8cm

Using Scale Factors | **Diving**

The rectangle has been enlarged by a scale factor of 3.
Calculate the perimeter of the original shape.

Not to scale



5cm by 3cm are the dimensions of the original shape.

Dividing each dimension by 3 helps to solve this problem.

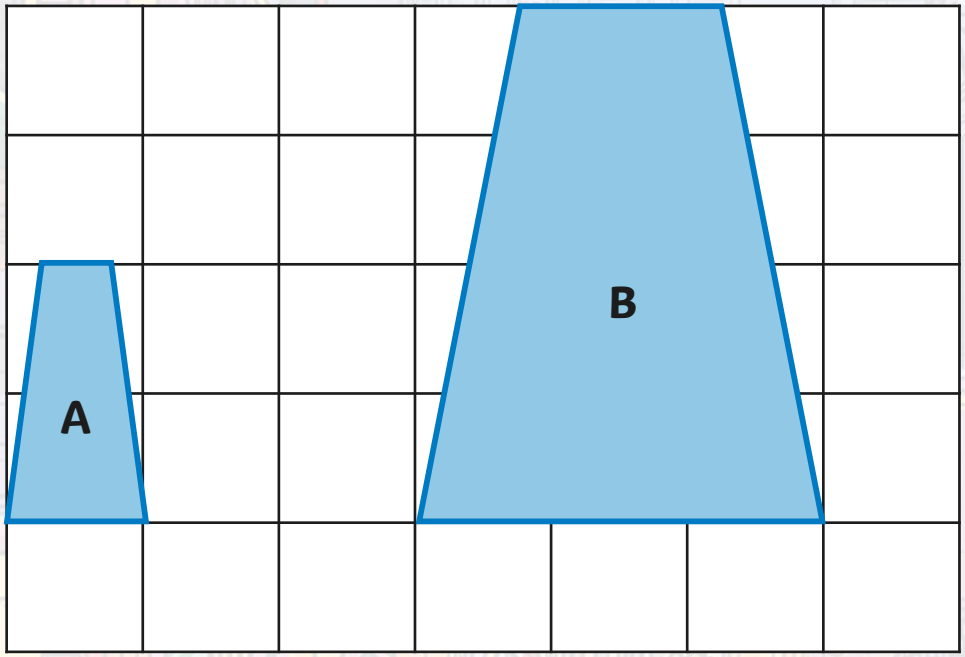
9cm ÷ 3 = 3cm

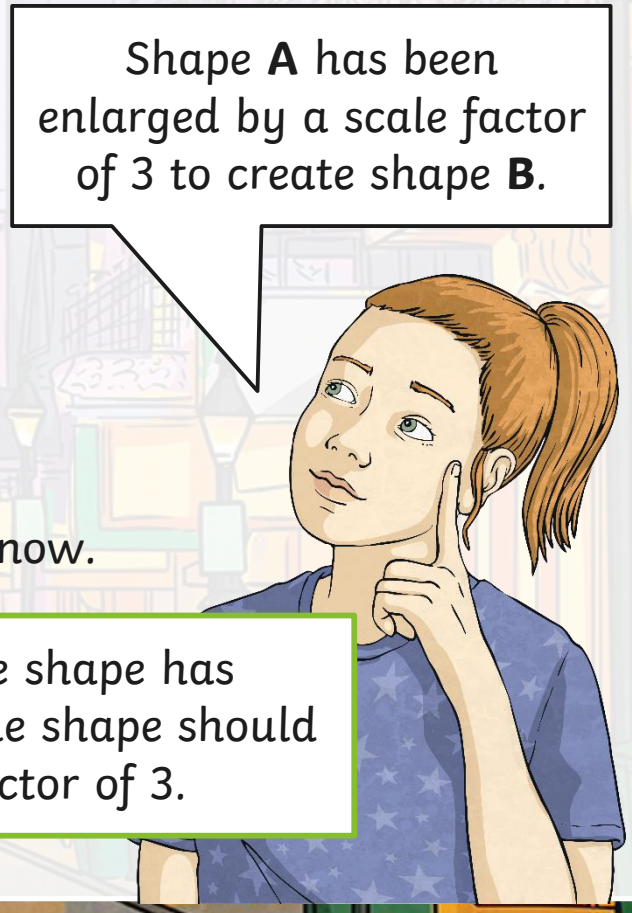
15cm ÷ 3 = 5cm

5cm + 5cm + 3cm + 3cm = 16cm

perimeter = 16cm

Using Scale Factors | **Deeper**





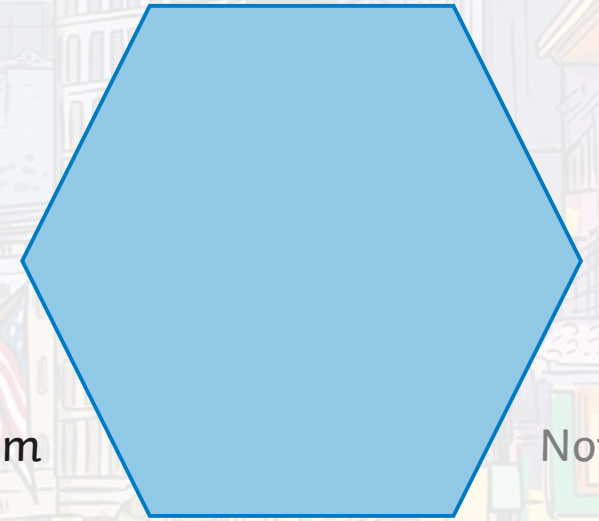
Do you agree with Ronda? Explain how you know.

Ronda is incorrect. Although the width of the shape has increased from 1 square to 3, the height of the shape should be 6 squares (not 4) if enlarged by a scale factor of 3.

Using Scale Factors **Deeper**

This regular hexagon has been enlarged by a scale factor of 2.

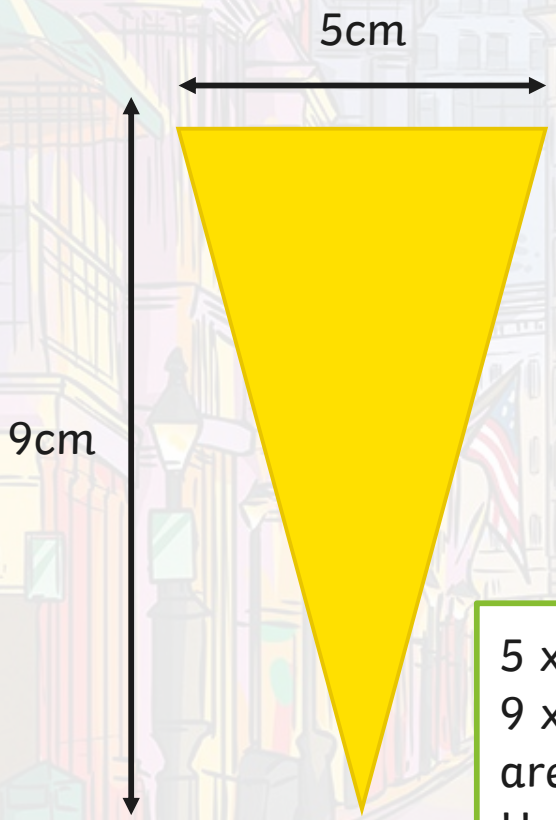
What was the perimeter of the original shape?



7cm ÷ 2 = 3.5cm
The original regular hexagon had sides measuring 3.5cm in length.
6 × 3.5cm = 21cm
perimeter of original hexagon = 21cm

Using Scale Factors | **Deeper**

Do you agree with Holly? Explain how you know.



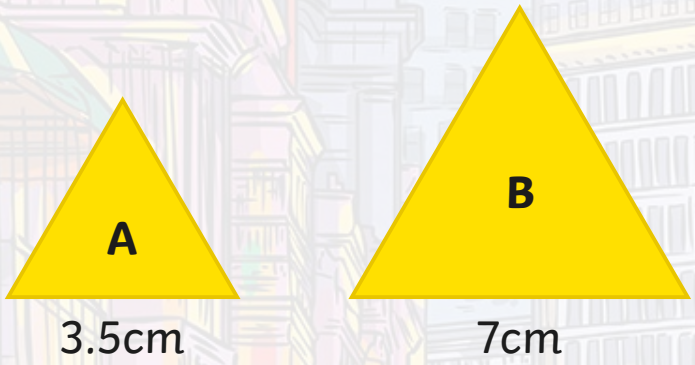
If I enlarge the shape by a scale factor of 4, the new area will be 280cm².



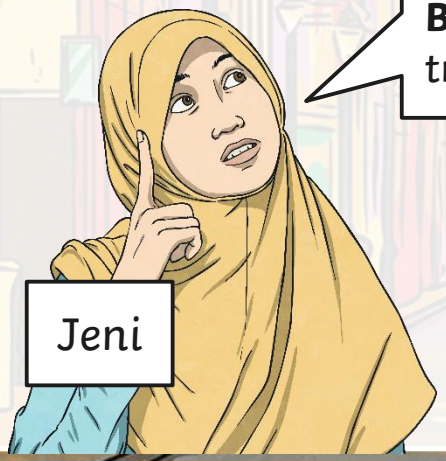
5 x 4 = 20cm
9 x 4 = 36cm
area = 36 x 20 ÷ 2 = 360cm²
Holly is incorrect.

Using Scale Factors | **Deepest**

Both triangles are equilateral triangles.

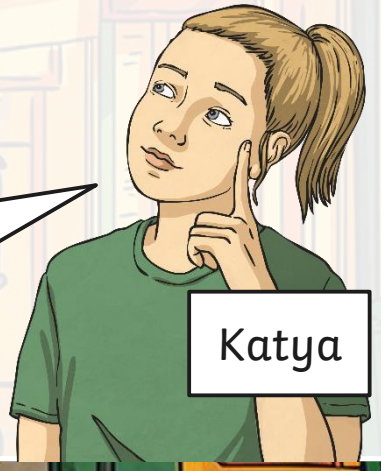


Do you agree with Jeni or Katya?
Use reasoning to explain your answer.



The perimeters of both shapes are even and triangle **B** is an enlargement of triangle **A** by scale factor 2.

None of the perimeters are even and triangle **B** is an enlargement of triangle **A** by scale factor 2.



Using Scale Factors | **Deepest**

The yellow rectangle is an enlargement of the blue rectangle. The blue rectangle has a perimeter of 10cm. Work out the perimeter of the yellow rectangle.



12cm



2cm

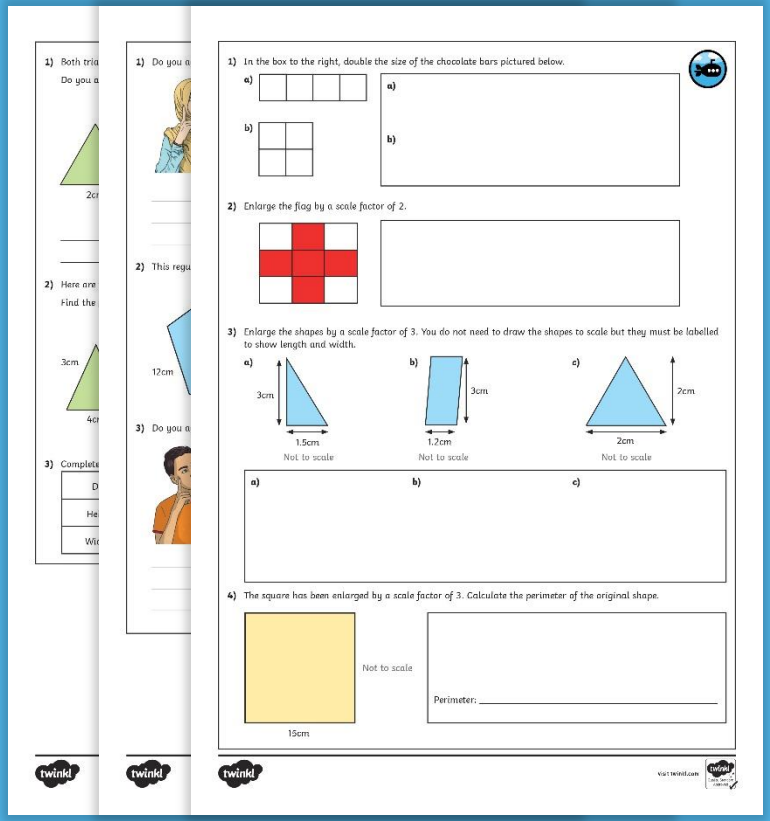


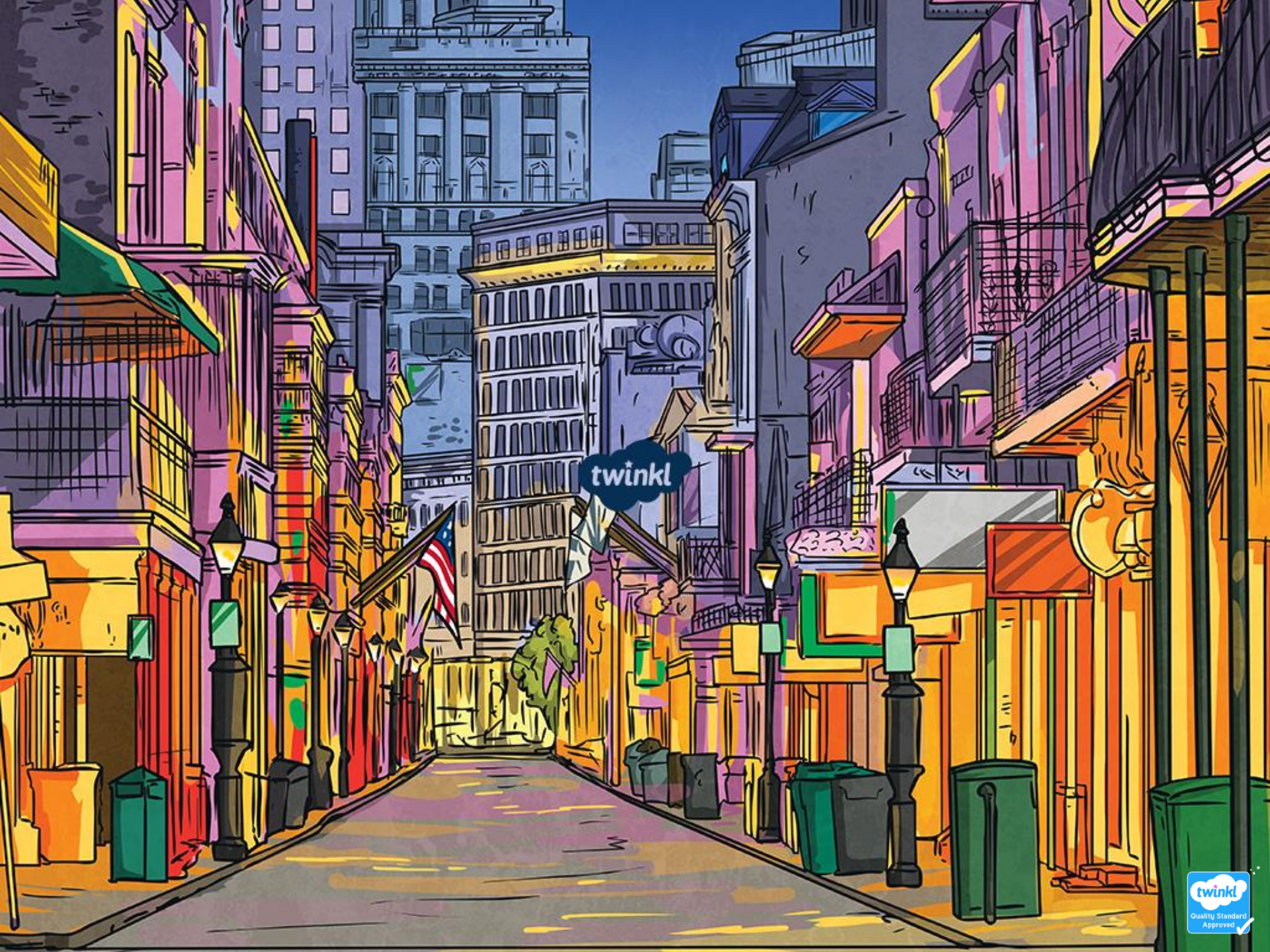
The blue rectangle is 2cm x 3cm.
The side that is 3cm has been enlarged by a scale factor of 4 to give 12cm.
Therefore, the yellow rectangle is 12cm x 8cm.
The perimeter of the yellow rectangle is 40cm.

Using Scale Factors

Dive in by completing your own activity!



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