

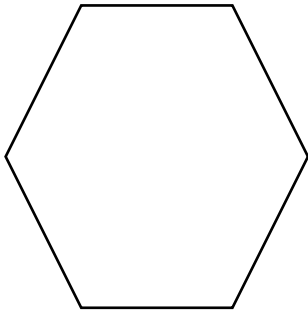
Year 5

Week 5

Lesson 1 – measuring perimeter

Challenge 1 Part 1

Here is a regular hexagon.

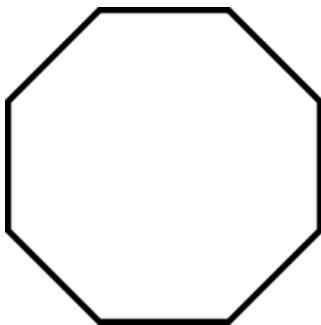


For each of the lengths of sides below, what would the perimeter be?

- a) Side = 4cm answer = 24cm
- b) Side = 6cm. answer = 36cm
- c) Side = 7cm. answer = 42cm

Challenge 1 part 2

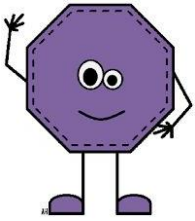
Here is a regular octagon.



For each of the lengths of sides below, what would the perimeter be?

- a) Side = 8cm answer = 64cm
- b) Side = 9cm. answer = 72cm
- c) Side = 12cm. answer = 96cm

### Challenge 2



Olly Octagon has one side that is **15cm**.

Olly says that the perimeter of his octagon face is **135cm**.

Has Olly worked out the perimeter of his octagon face correctly?

Prove and explain your thinking.

**Olly is incorrect as an octagon is an 8 sided shape. This means he would do  $8 \times 15$  which makes 120cm. Olly has done  $9 \times 15$ cm which would be a nonagon.**

### Challenge 3

For each of the shapes below, you have been given the **perimeter**. Calculate the size of **one side**. Show all of your workings out in your books – I want to see how you got the answer.

- A regular **nonagon** has a perimeter of **117cm**. What is the size of one side?
- A regular **septagon** has a perimeter of **126cm**. What is the size of one side?
- A regular **decagon** has a perimeter of **140cm**. What is the size of one side?
- A regular **octagon** has a perimeter of **152cm**. What is the size of one side?

Answers =

- 13cm
- 18cm
- 14cm
- 19cm

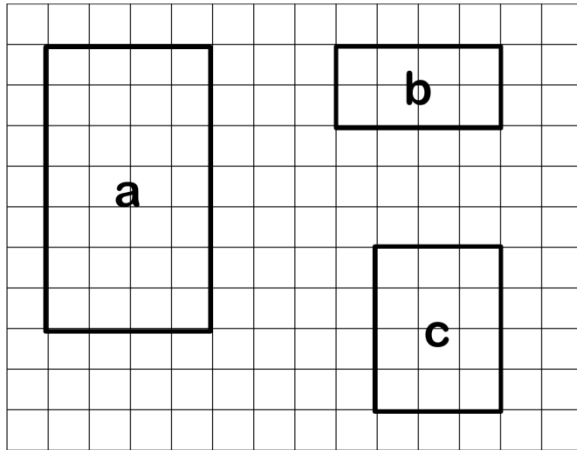
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Lesson 2 – measuring perimeter

Challenge 1 Part 1

What is the perimeter of these rectangles? Use the squares and count around the shapes carefully.



A = 22cm

B = 12cm

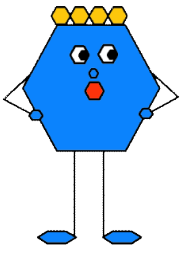
C = 14cm

Challenge 1 part 2

Below are the lengths (L) and widths (W) of some rectangles. Use the formula  $P=(L + W) \times 2$  to calculate their perimeter.

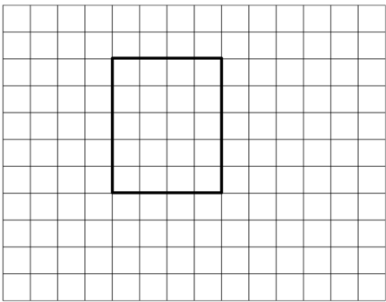
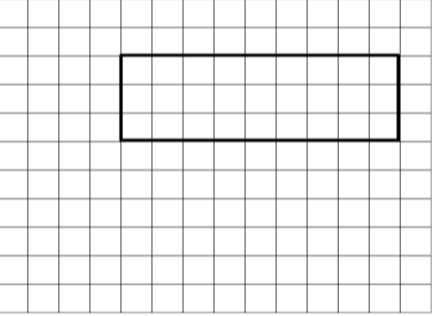
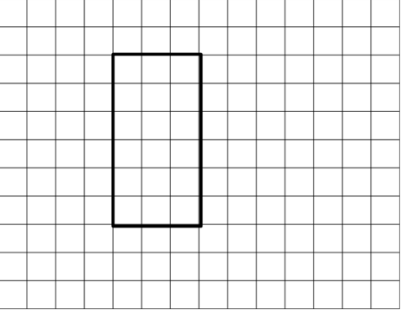
- a) L = 7cm    W = 3cm    answer = 20cm
- b) L = 10cm    W = 5cm    answer = 30cm
- c) L = 6cm    W = 3cm    answer = 18cm
- d) L = 9cm    W = 4cm    answer = 26cm
- e) L = 8cm    W = 2cm    answer = 20cm

## Challenge 2



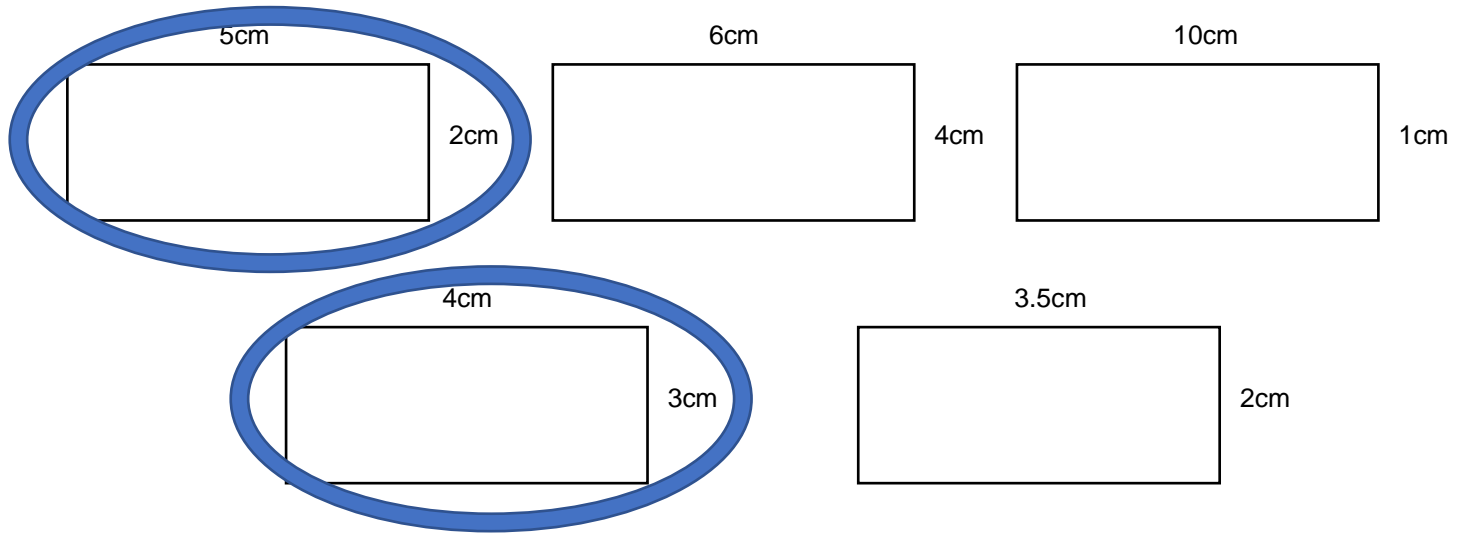
Helen Hexagon has been using squares to count around the rectangle to measure its perimeter. Then, she has used the formula  $P = (L + W) \times 2$  to check her answer. Here are all of her answers.

Mark Helen Hexagon's work to see if there are any mistakes in there.

| Rectangle on square grid  | Formula<br>$P = (L + W) \times 2$  | Marking and feedback   |
|---|--|--|
|   | $P = (5 + 4) \times 2$<br><br>$P = 9 \times 2$<br><br>$P = 18\text{cm}$  | Her answer is correct.   |
|  | $P = (8 + 3) \times 2$<br><br>$P = 11 \times 2$<br><br>$P = 22\text{cm}$ | Her answer is incorrect. The length of one of the sides is not 8. It is 9cm. this would make her perimeter 24cm. |
|  | $P = (6 + 3) \times 2$<br><br>$P = 8 \times 2$<br><br>$P = 16\text{cm}$  | Her answer is incorrect. $6 + 3 = 9$ not 8. This means that her perimeter should be 18cm.                        |

Challenge 3

Which two shapes have the same perimeter? None of these are drawn to scale.



These two have the same perimeter because

$$(5 + 2) \times 2 = 14\text{cm}$$

$$(4 + 3) \times 2 = 14\text{cm}$$

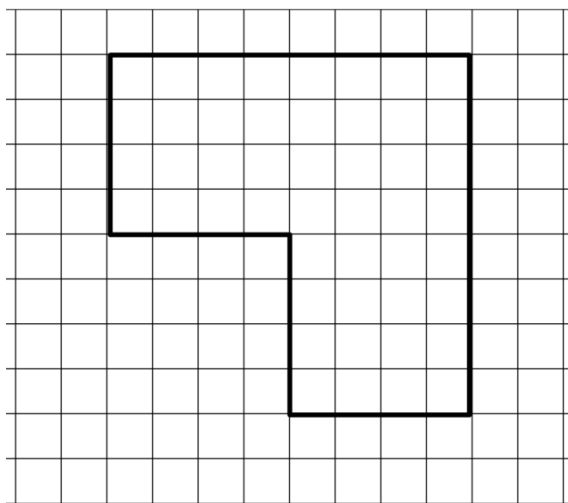
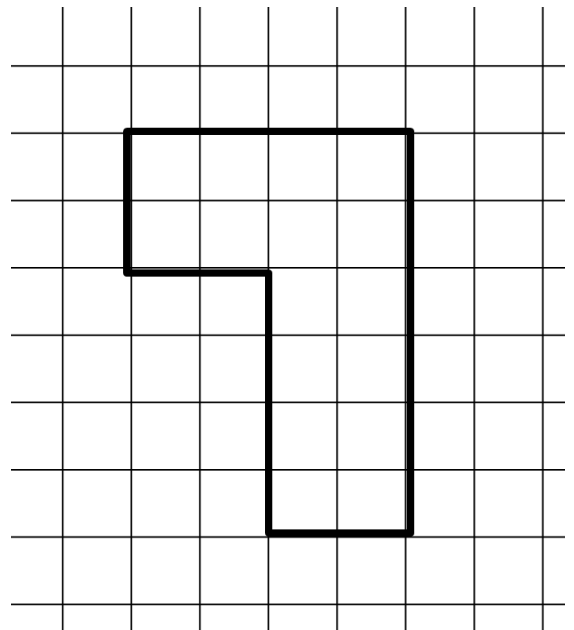
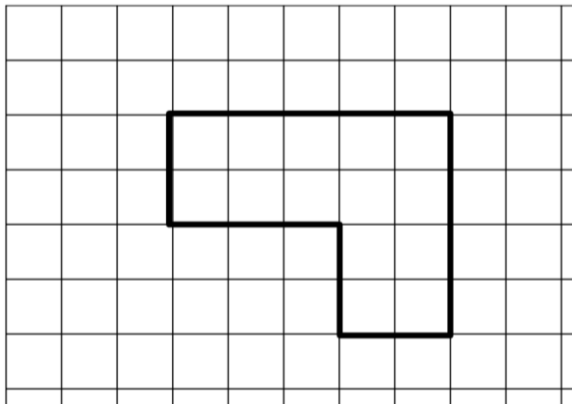
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Lesson 3 – measuring perimeter- composite shapes

Challenge 1 Part 1

Calculate the perimeter (cm) of the composite shapes by counting the squares around every single side.



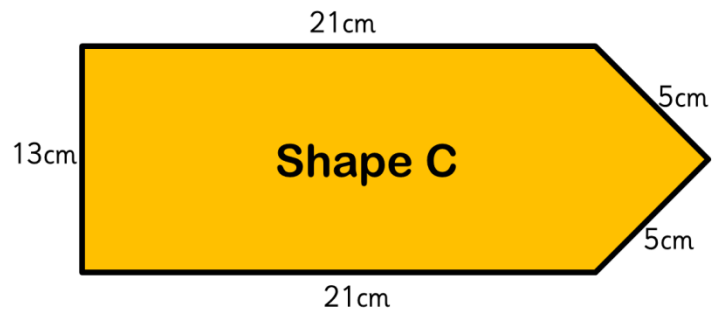
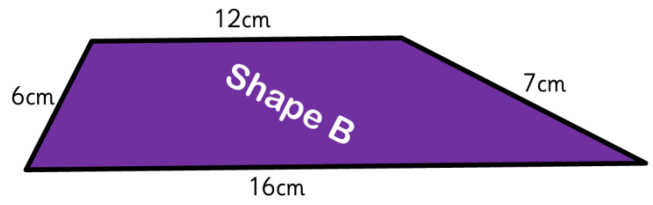
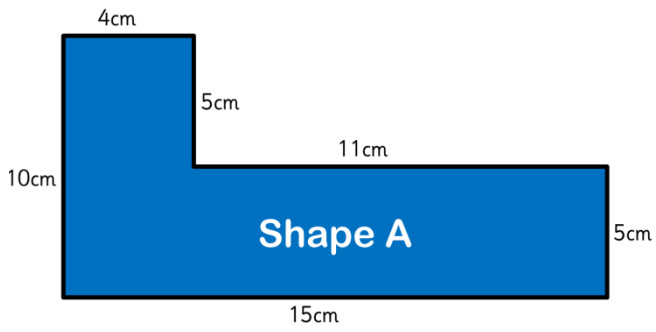
A = 18cm

B = 20 cm

C = 32cm

Challenge 2

Here are some composite shapes. Calculate their perimeter.



A = 50cm

B = 41cm

C = 65cm

Challenge 3

The perimeter of the red composite shape is 34cm.

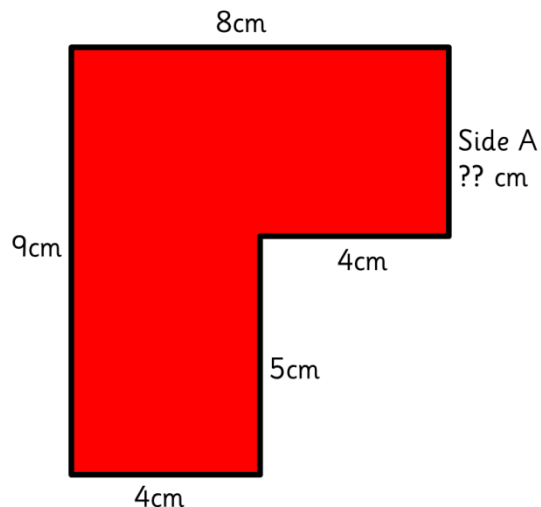
There are two methods to calculate the size Side A.

Calculate the size of Side A, showing/explaining your method.

**34 cm is the total.**

**Add up all the sides you know then subtract from total.**

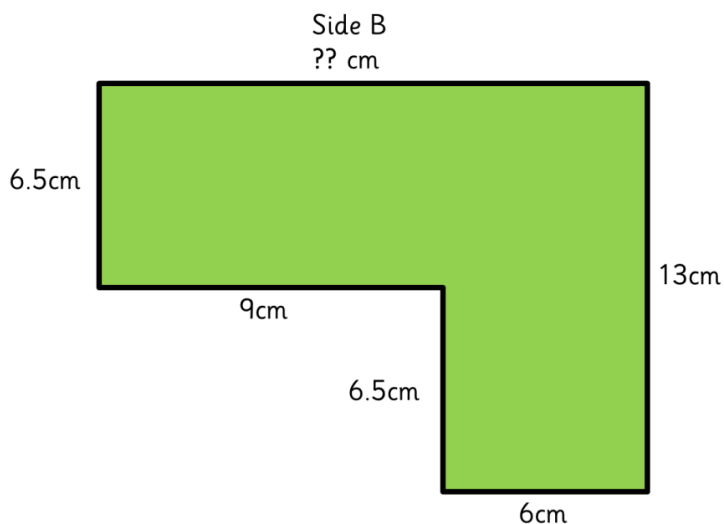
$$34 - 30 = 4\text{cm}$$



The perimeter of the green composite shape is 56cm.

Again, there are two methods to calculate the size Side B.

Calculate the size of Side B, showing/explaining your method. Try to use the opposite method of the red shape if you can.



**Add up the horizontal angles (opposite to side B)**

$$6 + 9 = 15\text{ cm}$$

$$\text{Side B} = 15\text{ cm}$$



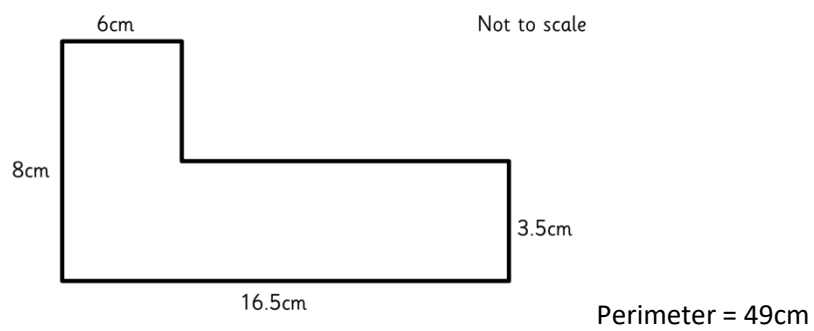
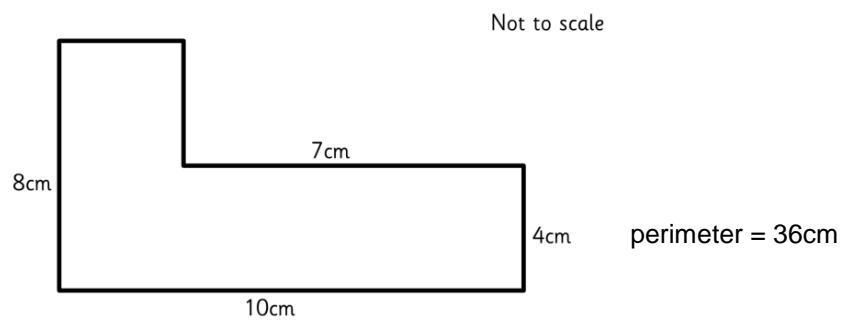
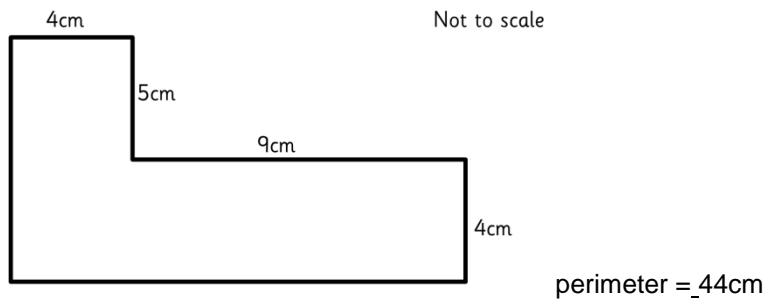
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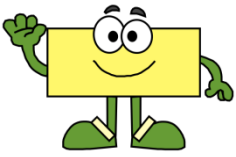
Lesson 4 – measuring perimeter- composite shapes missing sides

Challenge 1

Calculate the perimeter (cm) of this composite shape by first finding the unknown lengths.



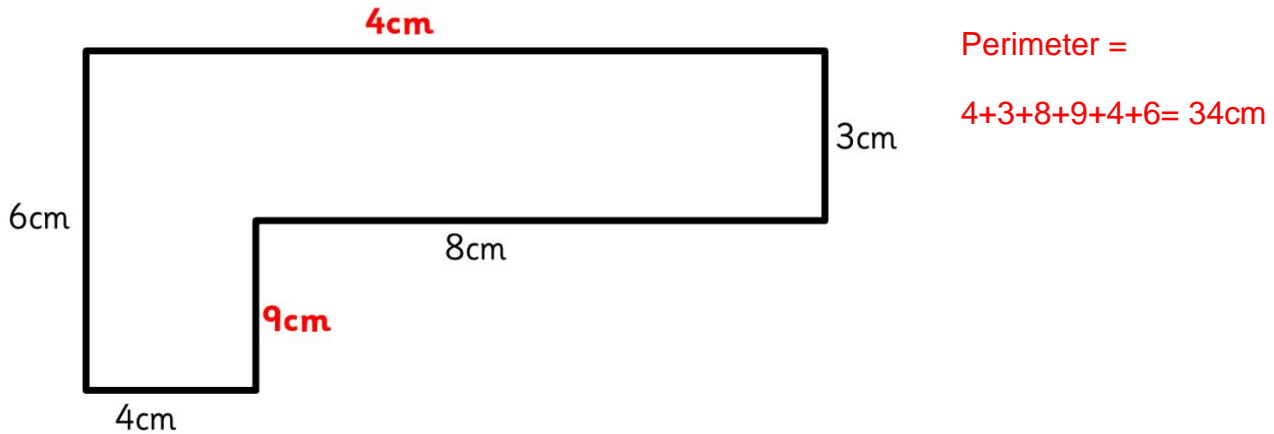
### Challenge 2



Ralph Rectangle is really chuffed with himself! He has calculated the perimeter of this composite shape by finding the unknown lengths and then adding up all of the sides.

Ralph has gone a little bit wrong ☹️ He has written in **red pen** so you know which are his calculations. Find his mistakes and correct them. Make sure you explain what he has done and what he should have done!

Not to scale



He has added  $6 + 3$  to get 9 when he should of subtracted it to get 3.

He subtracted  $8 - 4$  to get 4 when he should of added it to get 12.

Answer of perimeter = 36cm

### Challenge 3

How many composite shapes can you draw with a total perimeter of 25cm?

Pick one of the composite shapes that you have drawn and explain how you know that the perimeter is 25cm.

There could be many answers for this question. Double check you adding.