

Reasoning and Problem Solving

Step 2: Calculate Perimeter

National Curriculum Objectives:

Mathematics Year 5: (5M7a) [Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use a given perimeter of a square to work out the perimeter of a different shape. Whole centimetres only.

Expected Use a given perimeter of a square to work out the perimeter of a different shape, using centimetres with half lengths.

Greater Depth Use a given perimeter of a regular hexagon or octagon to work out the perimeter of a different shape, using centimetres with half lengths. Convert the answer to metres.

Questions 2, 5 and 8 (Problem Solving)

Developing Calculate the possible length of sides of a rectangle when given the perimeter. Includes whole metres.

Expected Calculate the possible length of sides of a rectangle when given the perimeter. Includes half metres.

Greater Depth Calculate the possible length of sides of a rectangle when given the perimeter. Includes half metres for all four sides.

Questions 3, 6 and 9 (Reasoning)

Developing Explain if a statement is correct or not when calculating the perimeter of a given shape using whole metres.

Expected Explain if a statement is correct or not when calculating the perimeter of a given shape using metres with some half lengths shown as decimals and some quarter lengths shown as fractions.

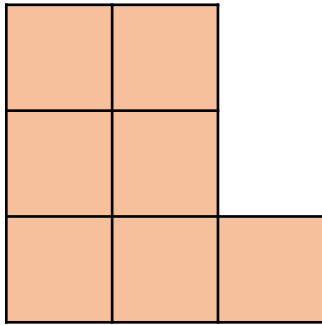
Greater Depth Explain if a statement is correct or not when calculating the perimeter of a given shape using centimetres and metres with some half and quarter lengths shown as decimals and fractions, and some conversion of units.

More [Year 5 Perimeter and Area](#) resources

Did you like this resource? Don't forget to [review](#) it on our website.

Calculate Perimeter

1a. This shape has been made using identical squares. One square has a perimeter of 28cm. What is the perimeter of the whole shape?

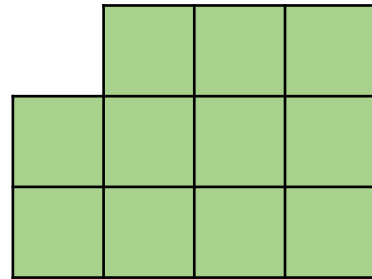


Not to scale

PS

Calculate Perimeter

1b. This shape has been made using identical squares. One square has a perimeter of 24cm. What is the perimeter of the whole shape?



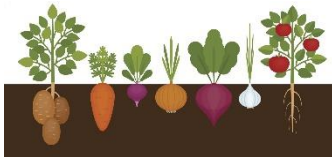
Not to scale

PS

2a. Mr Barnes is digging a new allotment. It needs to be the following shape and size:

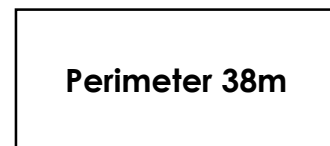


What could the length of each side be?



PS

2b. The council are building a new playground. It needs to be the following shape and size:



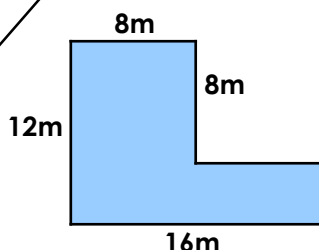
What could the length of each side be?



PS

3a. Cherry says,

The perimeter is 44m.



Is Cherry correct? Explain your answer.

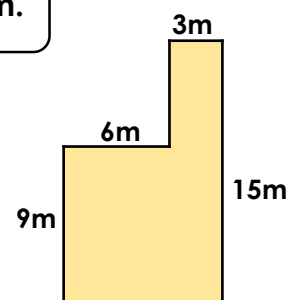


Not to scale

R

3b. Oliver says,

The perimeter is 33m.



Is Oliver correct? Explain your answer.

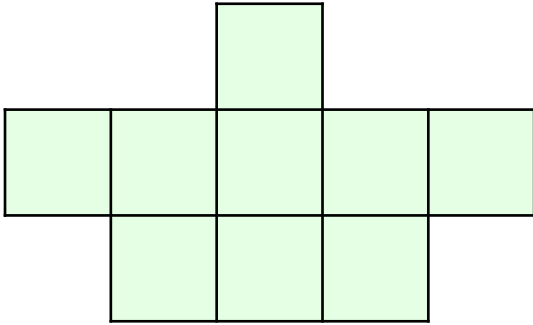


Not to scale

R

Calculate Perimeter

4a. This shape has been made using identical squares. One square has a perimeter of 18cm. What is the perimeter of the whole shape?

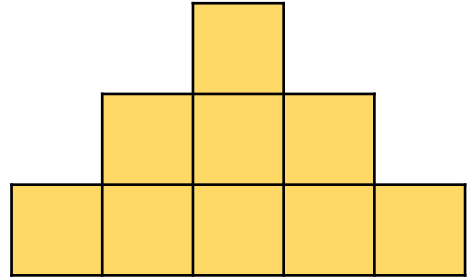


Not to scale

PS

Calculate Perimeter

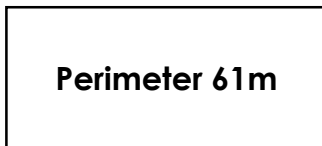
4b. This shape has been made using identical squares. One square has a perimeter of 22cm. What is the perimeter of the whole shape?



Not to scale

PS

5a. A supermarket is building a new trolley bay. It needs to be the following shape and size:



What could the length of each side be?



PS

5b. A school is building a new staff car park. It needs to be the following shape and size:



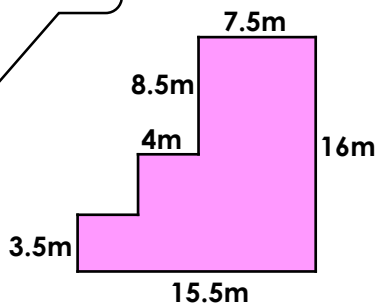
What could the length of each side be?



PS

6a. Lucy says,

The perimeter is 55m.



Is Lucy correct? Explain your answer.

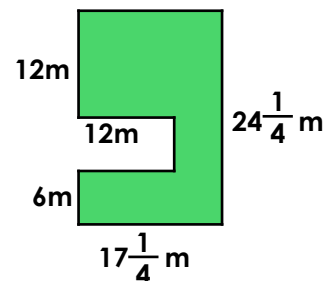


Not to scale

R

6b. Tahir says,

The perimeter is 71.5m.



Is Tahir correct? Explain your answer.

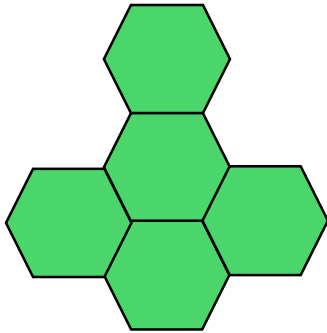


Not to scale

R

Calculate Perimeter

7a. This shape has been made using identical regular hexagons. One hexagon has a perimeter of 21cm. What is the perimeter of the whole shape in metres?

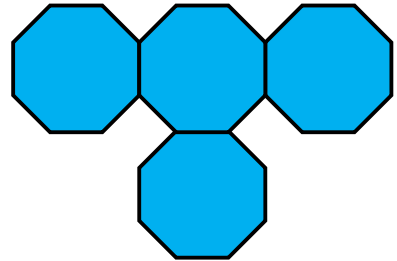


Not to scale

PS

Calculate Perimeter

7b. This shape has been made using identical regular octagons. One hexagon has a perimeter of 36cm. What is the perimeter of the whole shape in metres?



Not to scale

PS

8a. A farmer is building a new barn. It needs to be the following shape and size:

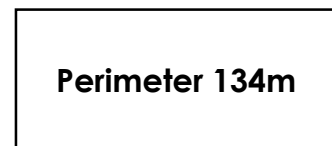


All four sides need to include half metres. What could the length of each side be in metres?



PS

8b. A shop is being extended. It needs to be the following shape and size:



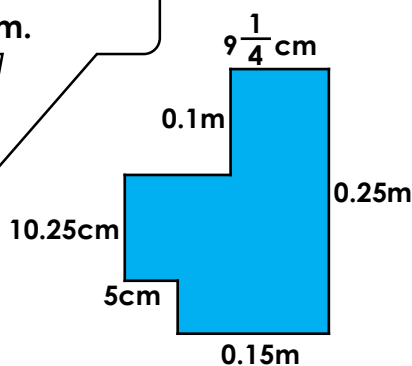
All four sides need to include half metres. What could the length of each side be in metres?



PS

9a. Colin says,

The perimeter is 74.5cm.



Is Colin correct? Explain your answer.

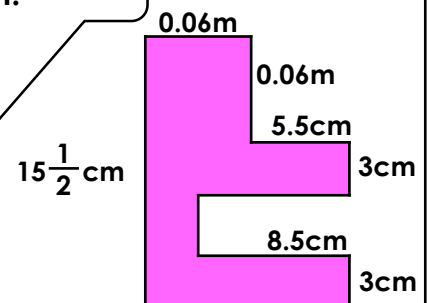


Not to scale

R

9b. Connie says,

The perimeter is 47.5cm.



Is Connie correct? Explain your answer.



Not to scale

R

Reasoning and Problem Solving Calculate Perimeter

Developing

1a. **84cm**

2a. Various answers, for example:

$$16\text{m} + 5\text{m} + 16\text{m} + 5\text{m}$$

3a. Cherry is incorrect because she has only added the labelled measurements. The missing measurements are 8m and 4m. The perimeter is 56m.

Expected

4a. **72cm**

5a. Various answers, for example:

$$20\text{m} + 10.5\text{m} + 20\text{m} + 10.5\text{m}$$

6a. Lucy is incorrect because she has only added the labelled measurements. The missing measurements are 4m and 4m. The perimeter is 63m.

Greater Depth

7a. **0.63m**

8a. Various answers, for example:

$$39.5\text{m} + 22.5\text{m} + 39.5\text{m} + 22.5\text{m}$$

9a. Colin is incorrect because he has only added the labelled measurements. The missing measurements are 10.75cm and 4.75cm. The perimeter is 90cm.

Reasoning and Problem Solving Calculate Perimeter

Developing

1b. **84cm**

2b. Various answers, for example:

$$15\text{m} + 4\text{m} + 15\text{m} + 4\text{m}$$

3b. Oliver is incorrect because he has only added the labelled measurements. The missing measurements are 9m and 6m. The perimeter is 48m.

Expected

4b. **88cm**

5b. Various answers, for example:

$$20\text{m} + 8.5\text{m} + 20\text{m} + 8.5\text{m}$$

6b. Tahir is incorrect because he has only added the labelled measurements. The missing measurements are 17.25m, 12m and 6.25m. The perimeter is 107m.

Greater Depth

7b. **1.17m**

8b. Various answers, for example:

$$41.5\text{m} + 25.5\text{m} + 41.5\text{m} + 25.5\text{m}$$

9b. Connie is incorrect because she has only added the labelled measurements. The missing measurements are 3.5cm, 8.5cm and 11.5cm. The perimeter is 71cm.