Year 6 SATs

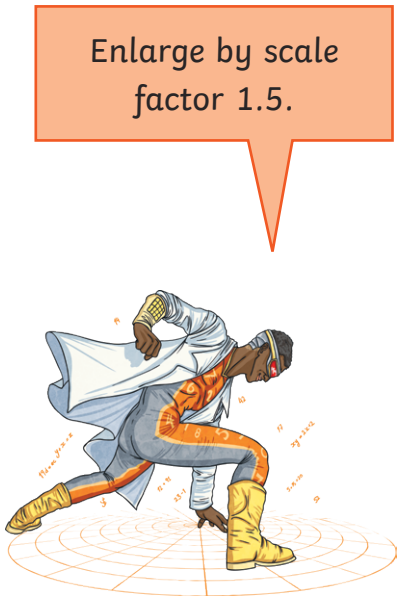
Activity Booklet 5

'Greater Depth'

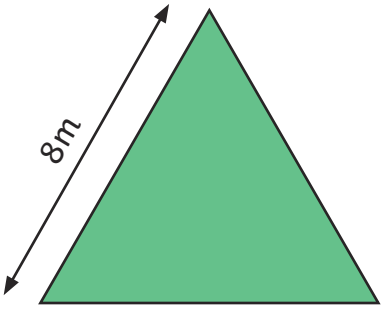
Name: _____

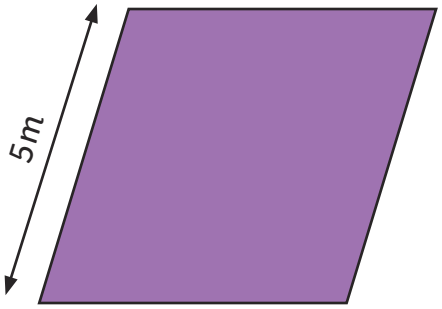
Look carefully at the superhero flags.

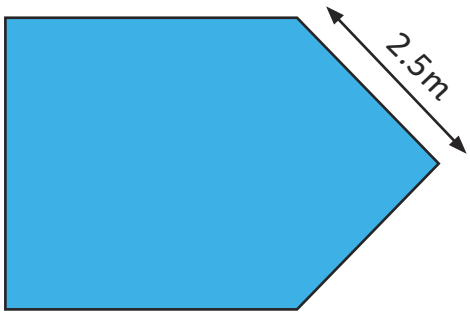
- Work out the new length of each side after it is enlarged by one of the superhero scale factors.

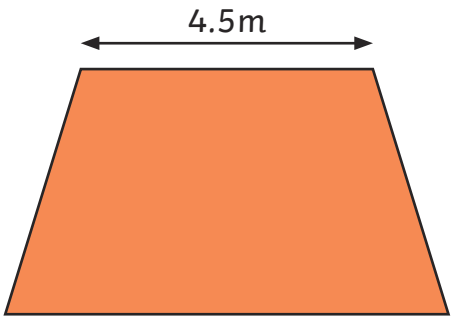


Not drawn to scale.



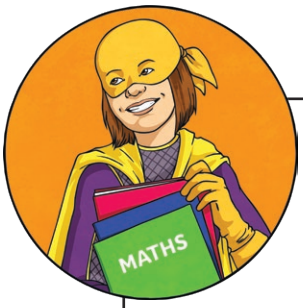






Extra Challenge

Can you calculate the length of each side if it is reduced by a scale factor of 0.2?

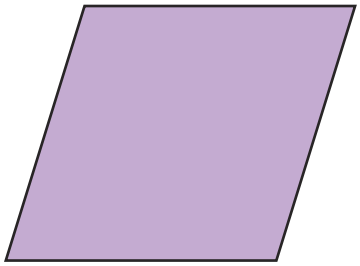


Look carefully at these SATs-style questions involving scale factors and ratio.

- What do we have to do to answer the question?
- What important information do we have to identify?

1. Here are the lengths of two similar parallelograms.

Parallelogram	Length
A	3cm
B	7.5cm



What is the simplified ratio of parallelogram A to B? ____ : ____

2. I am cooking a stir-fry. The recipe says that I need 270g of peppers for three servings. How many **kilograms** of peppers will I need for 10 servings?

_____ kg

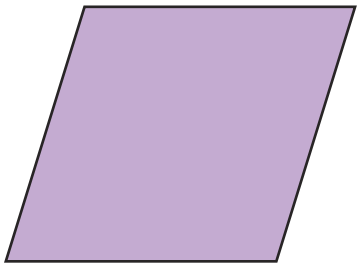
3. A statue is 5m tall and 1.3m wide. I make a model of the statue that is 0.5m tall. How wide is my model in centimetres?

_____ cm

Have a go at solving these problems.

1. Here are the lengths of two similar parallelograms.

Parallelogram	Length
A	4.5cm
B	6cm



What is the simplified ratio of parallelogram A to B?

:

2. I am cooking a stir-fry. The recipe says that I need 270g of peppers for three servings. How many **kilograms** of peppers will I need for 14 servings?

kg

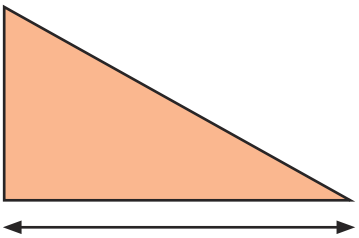
3. A statue is 12m tall and 3.2m wide. I make a model of the statue that is 9m tall. How wide is my model in centimetres?

cm

Look at this **incorrectly** completed SATs question.

- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

1. If this triangle is enlarged by a scale factor of 2.5, what will the length of side A be?



Side A = 9cm

9cm + 2.5cm = 11.5cm

Colour in the superhero strength-o-meter to show how you feel about each of these questions:

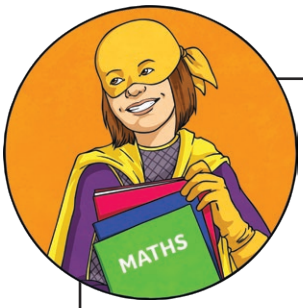
Can you identify and use scale factors to enlarge and reduce triangles and quadrilaterals?

Can the children solve problems involving scale factors and integer scaling?

Look carefully at the different superhero calculations.

- Which of the calculations are correct?
- Which of the calculations are incorrect?
- Can you explain why? What are the correct answers to the incorrect calculations?

Extra Challenge: Can you put brackets into the above calculations to help show which part should be calculated first.



Look carefully at these multi-step problems involving multiplication and division.

- What do we have to do to answer the question?
- What important information do we have to identify?

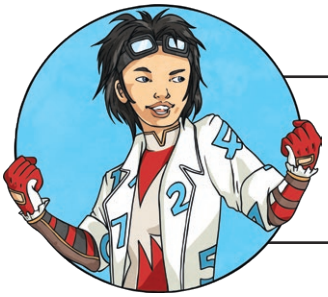
1. Write the missing numbers to make these calculations correct.

$$350 \times \square - 350 = 1{,}400$$

$$(1{,}240 - \square) \div 100 = 3.4$$

2. Write the correct sign, **>**, **<** or **=**, in each of the following.

200 − (24 × 7)	☐	(11 × 11) − (15 × 7)
200 − (18 × 7)	☐	200 − (14 × 9)
(245 ÷ 10) + (17 × 6)	☐	1040 ÷ (72 ÷ 9)
(327 ÷ 10) + (12 × 7)	☐	(252 ÷ 10) + (44.9 × 2)



Have a go at solving these problems.

1. Write the missing numbers to make these calculations correct.

$$450 \times \square - 450 = 1{,}350$$

$$(1{,}270 - \square) \div 100 = 4.7$$

2. Write the correct sign, **>**, **<** or **=**, in each of the following.

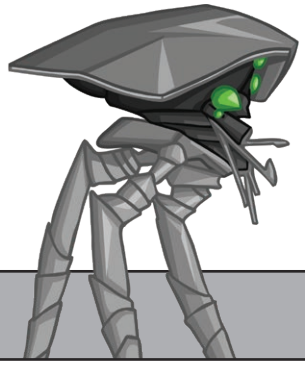
200 – (18 × 5)	☐	(12 × 12) – (17 × 2)
150 – (16 × 6)	☐	195 – (15 × 9)
(245 ÷ 10) + (17 × 6)	☐	1,560 ÷ (96 ÷ 8)
(11 × 6) + (9 × 6)	☐	(46 ÷ 2) + (9 × 8)

Look at this incorrectly completed SATs question.

- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

1. Write the missing numbers to make these calculations correct.

$$320 \times \boxed{2} - 320 = 640$$



Colour in the superhero strength-o-meter to show how you feel about each of these questions:

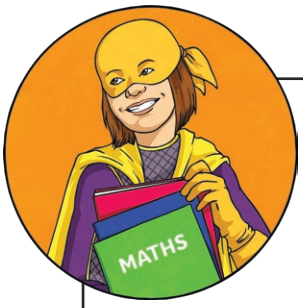
Can you use the rules of BODMAS to solve calculations involving the four operations?	○ ○ ○ ○ ○ ○
Can you perform mental calculations with mixed operations?	○ ○ ○ ○ ○ ○
Can you solve multi-step problems in contexts, deciding which operations and methods to use and why?	○ ○ ○ ○ ○ ○

The superheroes are making delicious snack bars to help maintain their strength and stamina. The recipe says that they need 176g of rolled oats for 10 snack bars.

- How many grams of rolled oats will each superhero need?
- Where possible, round your answer to the nearest gram.

Extra Challenge

The recipe also says to use 60g of peanut butter for every 100g of rolled oats. How many grams of peanut butter will each superhero need?



Look carefully at these SATs-style questions involving unequal sharing and grouping.

- What do we have to do to answer the question?
- What important information do we have to identify?

1. Look at the ratio, 3:5. If one part of the ratio becomes 225, there are two possible values for the other part. What are the two possible values?

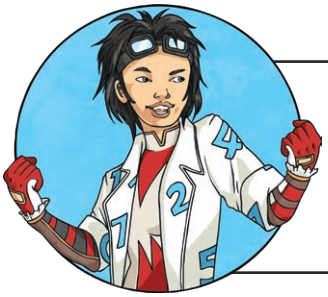
and

2. At my allotment, I plant onions and carrots. I plant five onions for every nine carrots. Altogether, I plant 210 onions and carrots. How many carrots did I plant?

carrots

3. On a map, 1cm represents 12km. The distance between two cities is 246km. On the map, what is the distance between the two cities?

cm



Have a go at answering these questions.

1. Look at the ratio, 4:7. If one part of the ratio becomes 504, there are two possible values for the other part. What are the two possible values?

and

2. At my allotment, I plant onions and carrots. I plant three onions for every seven carrots. Altogether, I plant 630 onions and carrots. How many carrots did I plant?

carrots

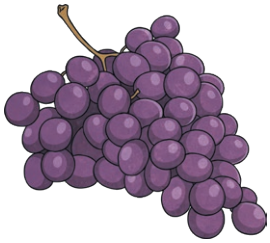
3. On a map, 1cm represents 14km. The distance between two cities is 259km. On the map, what is the distance between the two cities?

cm

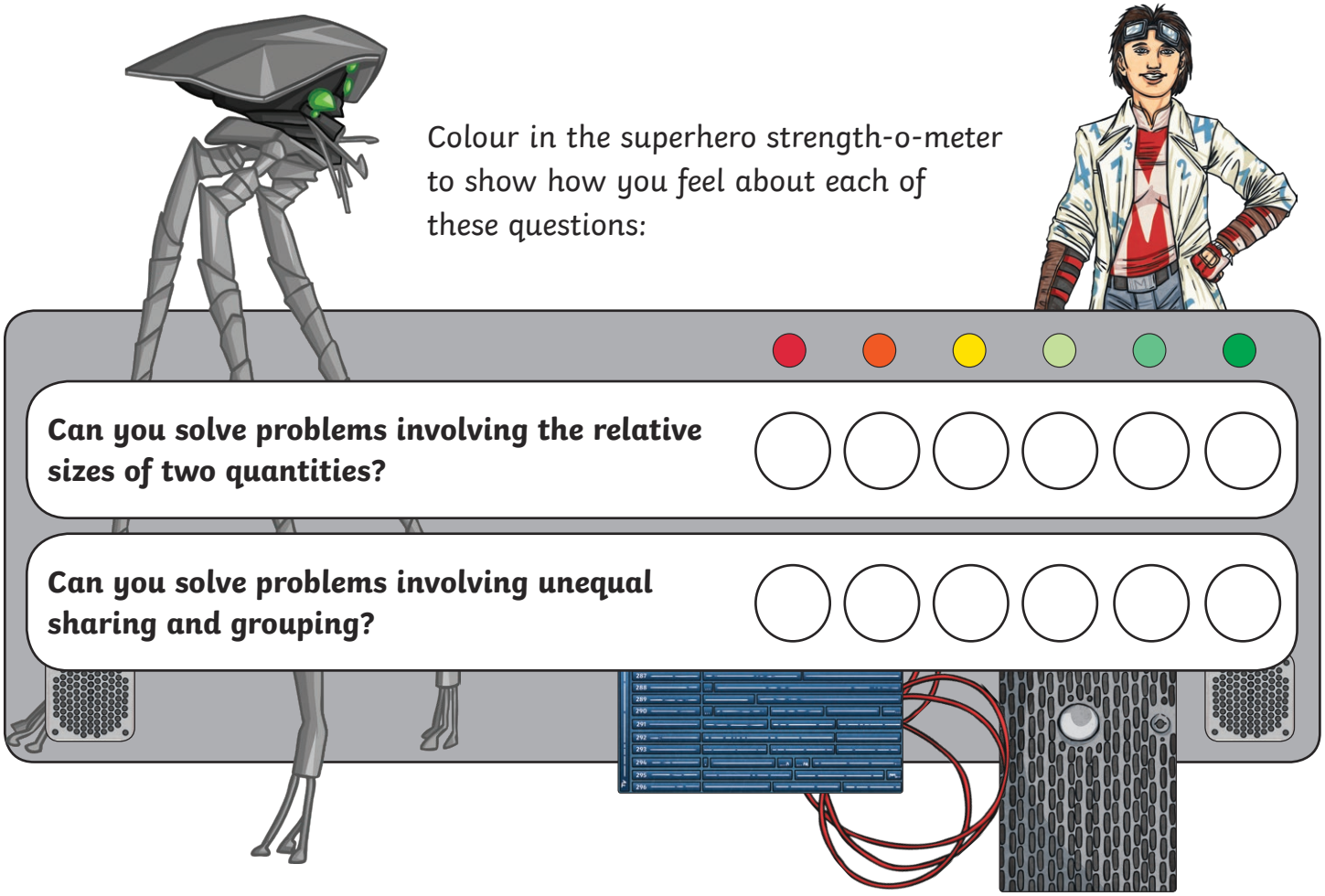
Look at this incorrectly completed SATs question.

- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

1. Three quarters of a kilogram of grapes costs £6.00. How much does 400g of grapes cost?



£6 ÷ 4 = £1.50



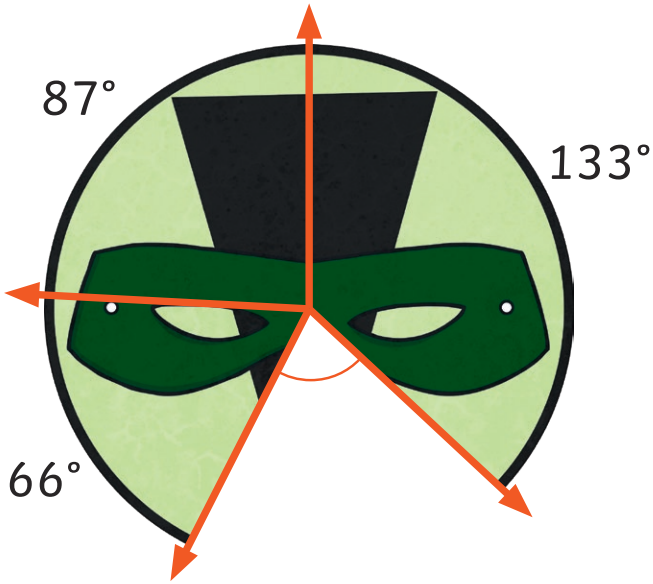
Colour in the superhero strength-o-meter to show how you feel about each of these questions:

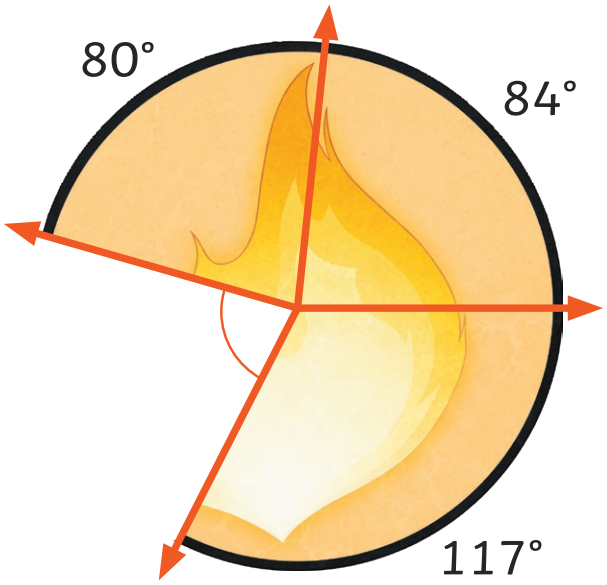
Can you solve problems involving the relative sizes of two quantities?

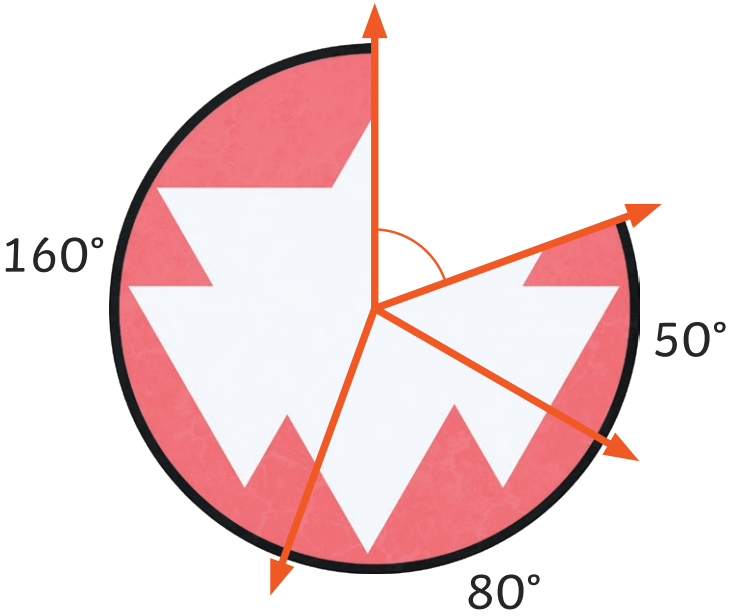
Can you solve problems involving unequal sharing and grouping?

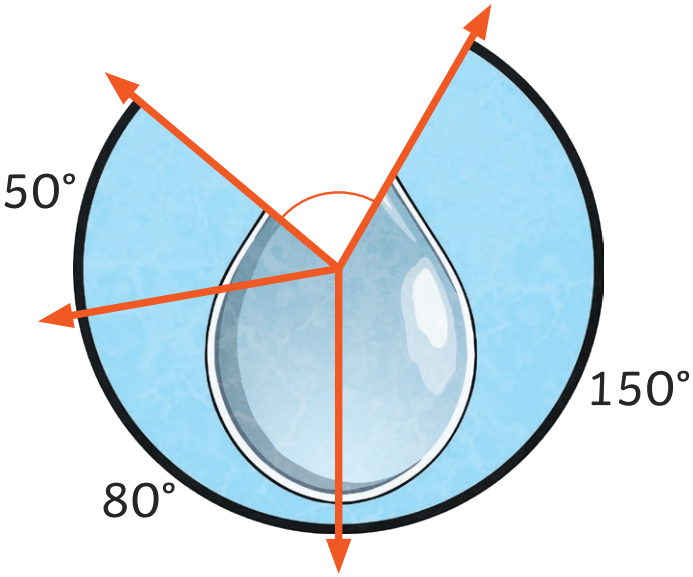
Look at each superhero badge.

- How many degrees are missing from each badge?



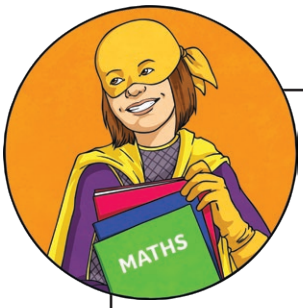






Extra Challenge

Identify whether each angle in the badges is an acute, obtuse or reflex angle.



Look carefully at these SATs-style questions involving calculating missing angles around a point, on straight lines or in triangles and quadrilaterals.

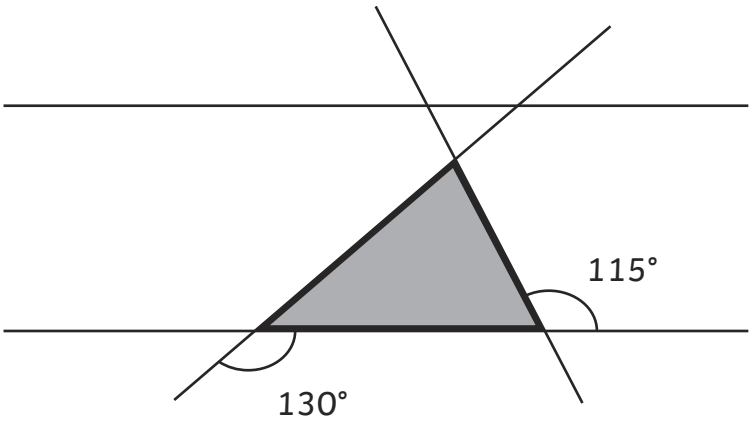
- What do we have to do to answer the question?
- What important information do we have to identify?

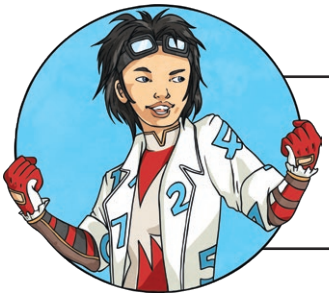
1. Complete the table to show the size of the angles in each polygon.

	Angle 1	Angle 2	Angle 3
Isosceles Triangle		28°	28°
Scalene Triangle	73°	91°	

	Angle 1	Angle 2	Angle 3	Angle 4
Parallelogram	110°			
Isosceles Trapezium	81°			

2. This diagram shows two straight lines intersecting with two parallel lines. Calculate the angles of the shaded triangle.





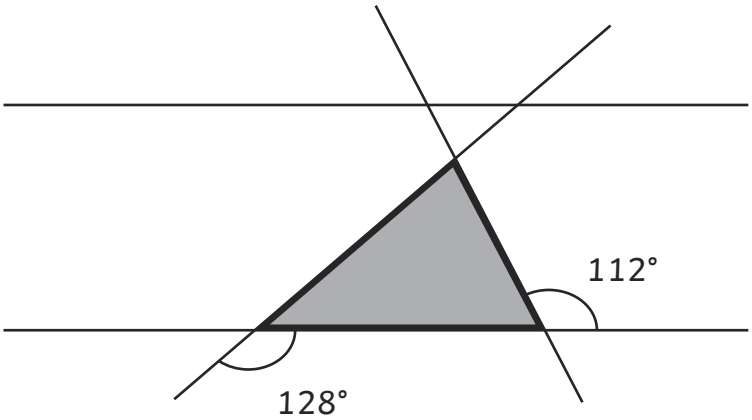
Have a go at solving these problems.

1. Complete the table to show the size of the angles in each polygon.

	Angle 1	Angle 2	Angle 3
Isosceles Triangle		18°	18°
Scalene Triangle	68°	100°	

	Angle 1	Angle 2	Angle 3	Angle 4
Parallelogram	118°			
Isosceles Trapezium	75°			

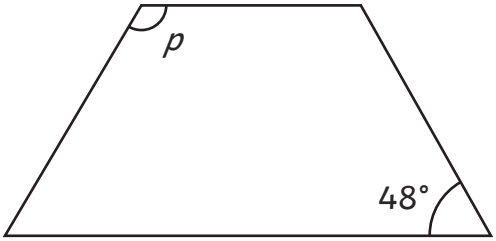
2. This diagram shows two straight lines intersecting with two parallel lines. Calculate the angles of the shaded triangle.



Look at this **incorrectly** completed SATs question.

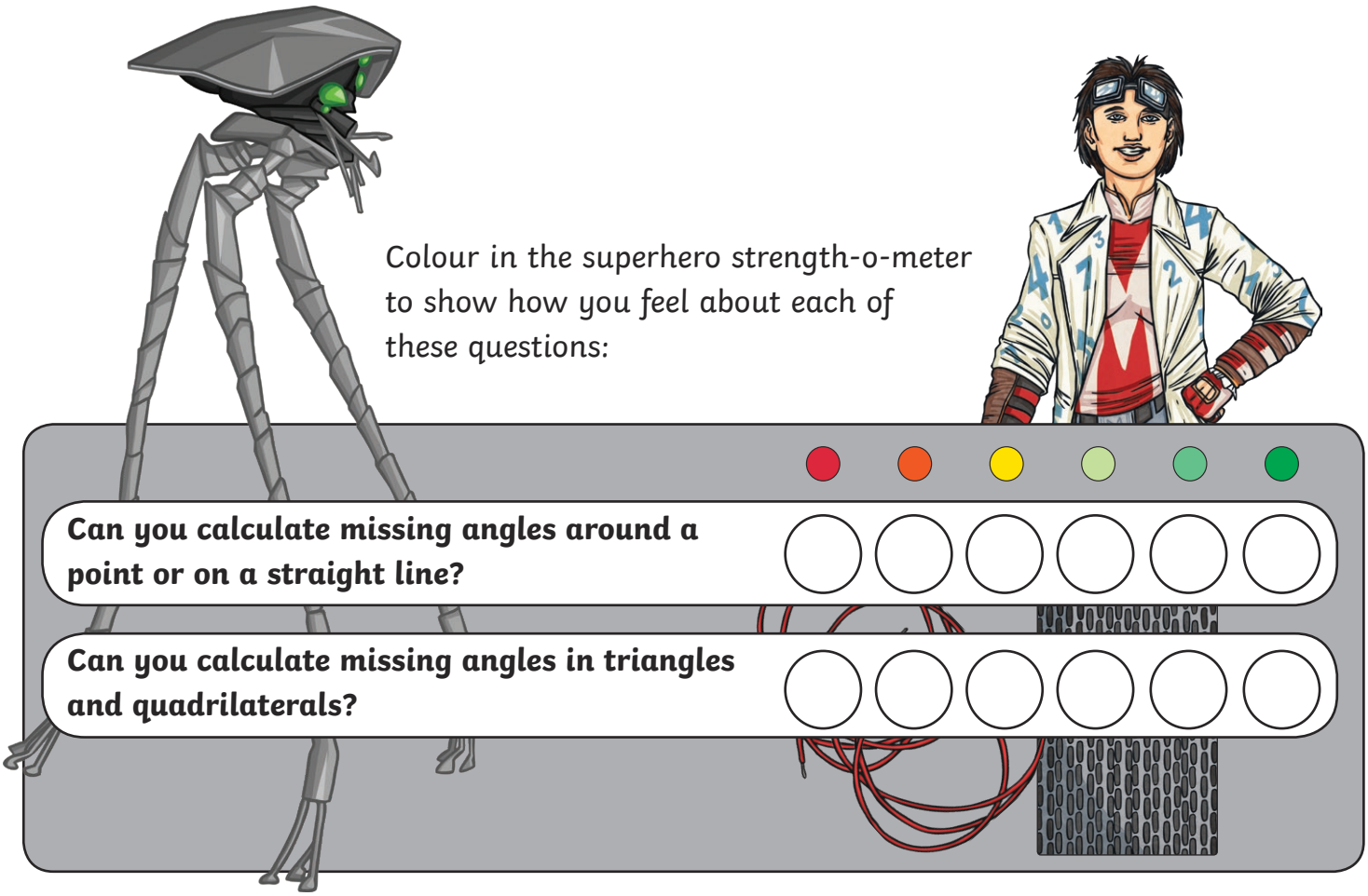
- What is the important information to identify?
- How is it best to work out the answers?
- What advice would you give to the child who completed this question?

1. Calculate the size of angle p in the isosceles trapezium.



Not to scale

$360° - 48° = 312°$



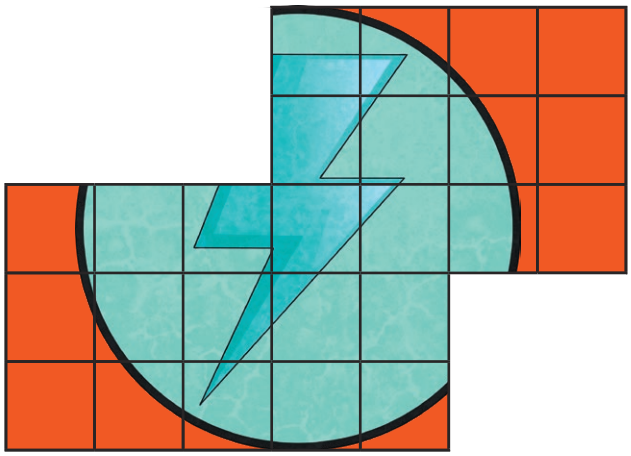
Colour in the superhero strength-o-meter to show how you feel about each of these questions:

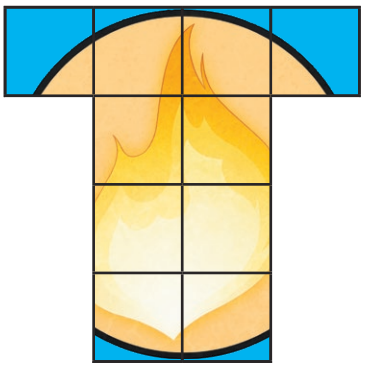
Can you calculate missing angles around a point or on a straight line?

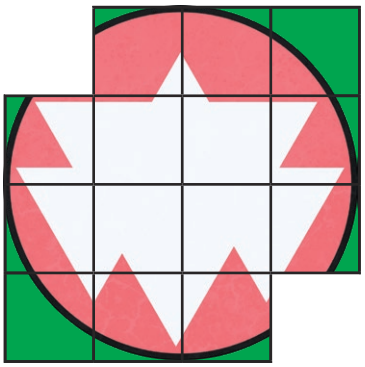
Can you calculate missing angles in triangles and quadrilaterals?

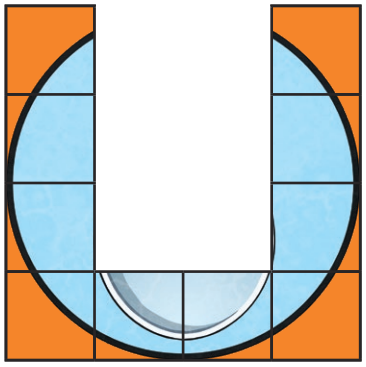
Look at the different rectilinear superhero flags measured in centimetre squares. (Not drawn to scale.)

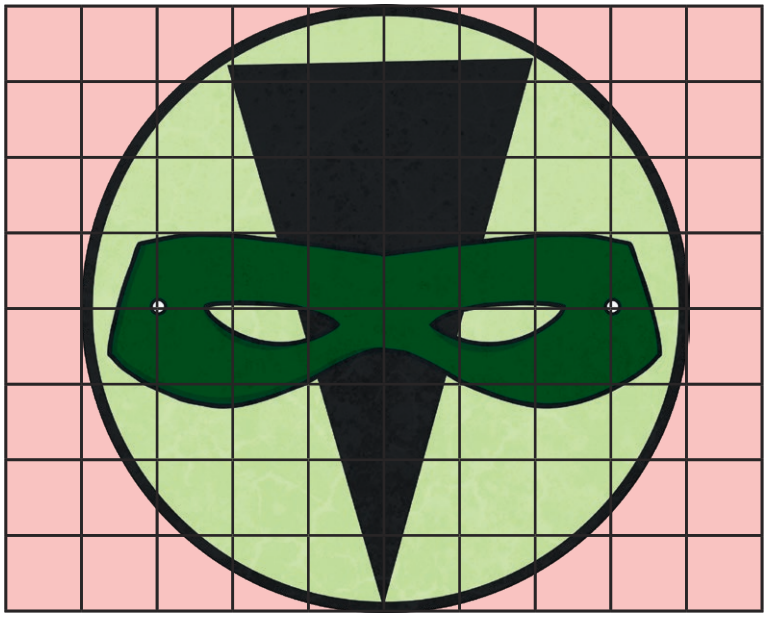
- Which of the superhero flags have the same perimeter?

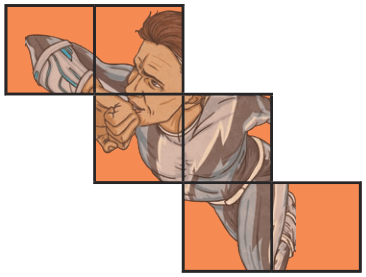


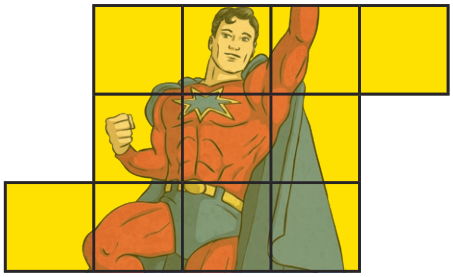


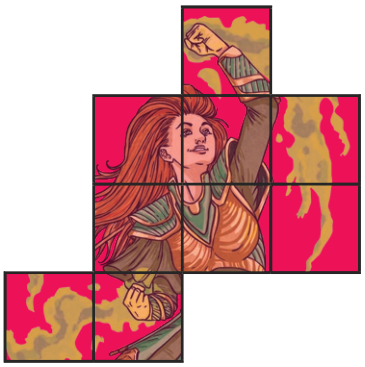






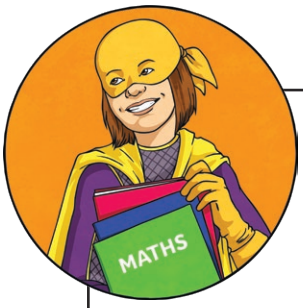






Extra Challenge

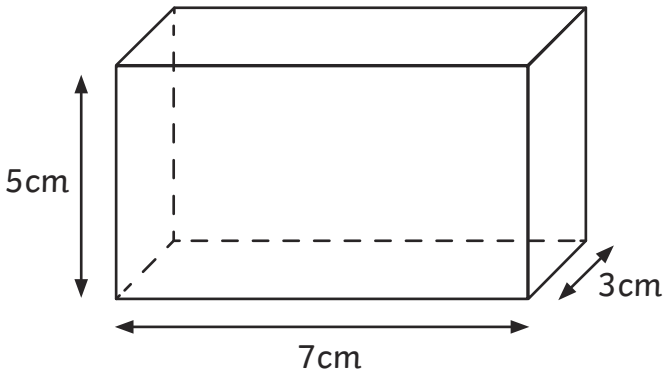
Could you make a flag with a perimeter equal to the area?



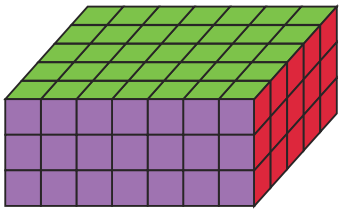
Look carefully at these SATs-style questions involving calculating perimeter, area and volume.

- What do we have to do to answer the question?
- What important information do we have to identify?

1. I make this cuboid. (Not drawn to scale.)



Tick the cuboid that has the same volume as my cuboid.



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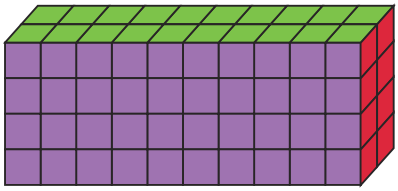

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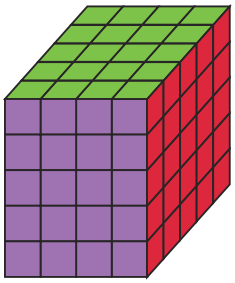

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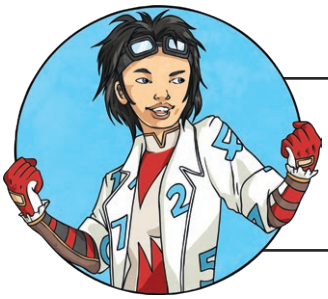
2. A square tile measures 7cm by 7cm.

A rectangular tile is 1cm longer and 2.5cm narrower than the square tile. What is the difference in area between the two tiles?

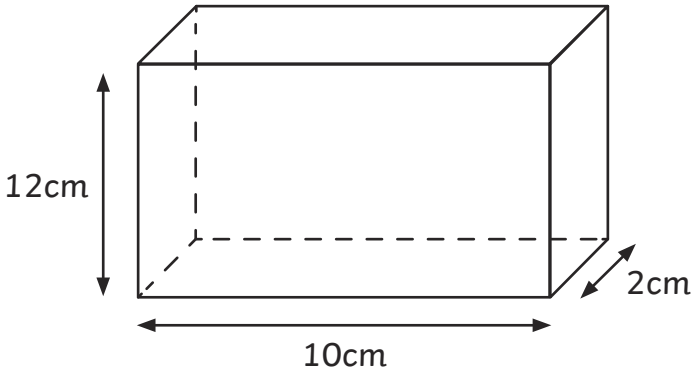
Show your method

cm^2

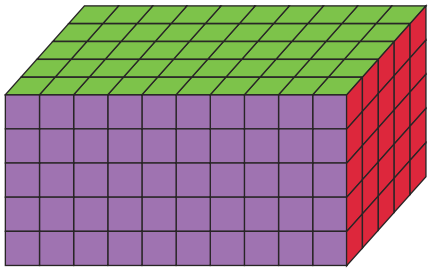


Have a go at answering these questions.

1. I make this cuboid. (Not drawn to scale.)



Tick the cuboid that has the same volume as my cuboid.



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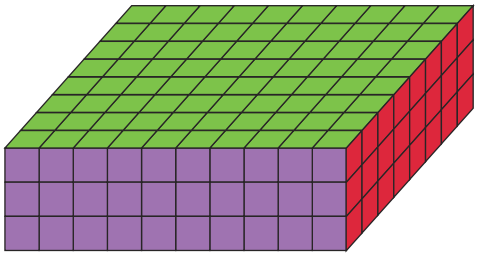

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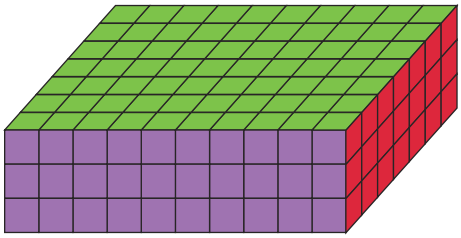

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2. A square tile measures 8cm by 8cm.

A rectangular tile is 6cm longer and 2.5cm narrower than the square tile.

What is the difference in area between the two tiles?

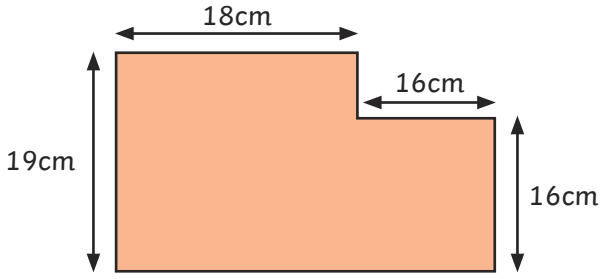
Show your method

cm^2

Look at this **incorrectly** completed SATs question.

- What is the important information to identify?
- How is it best to work out the answers?
- What advice would you give to the child who completed this question?

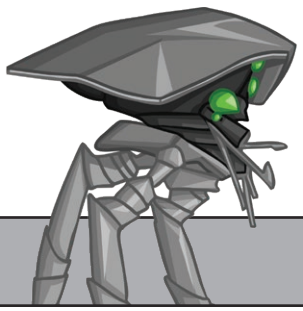
1. Calculate the perimeter of this polygon.
   (Not drawn to scale.)



Show your method

18cm + 16cm + 16cm + 19cm = 69cm

69 cm^2



Colour in the superhero strength-o-meter to show how you feel about each of these questions:

Can you calculate the perimeter of rectilinear shapes?	
Can you calculate the area of rectilinear shapes?	
Can you calculate the volume of cubes and cuboids?	