Student Name

Mathematics Stage 4

LENGTH

Book 1 Solve problems involving the perimeter of various quadrilaterals and simple composite shapes

Version: 260207

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CONTENTS

OVERVIEW

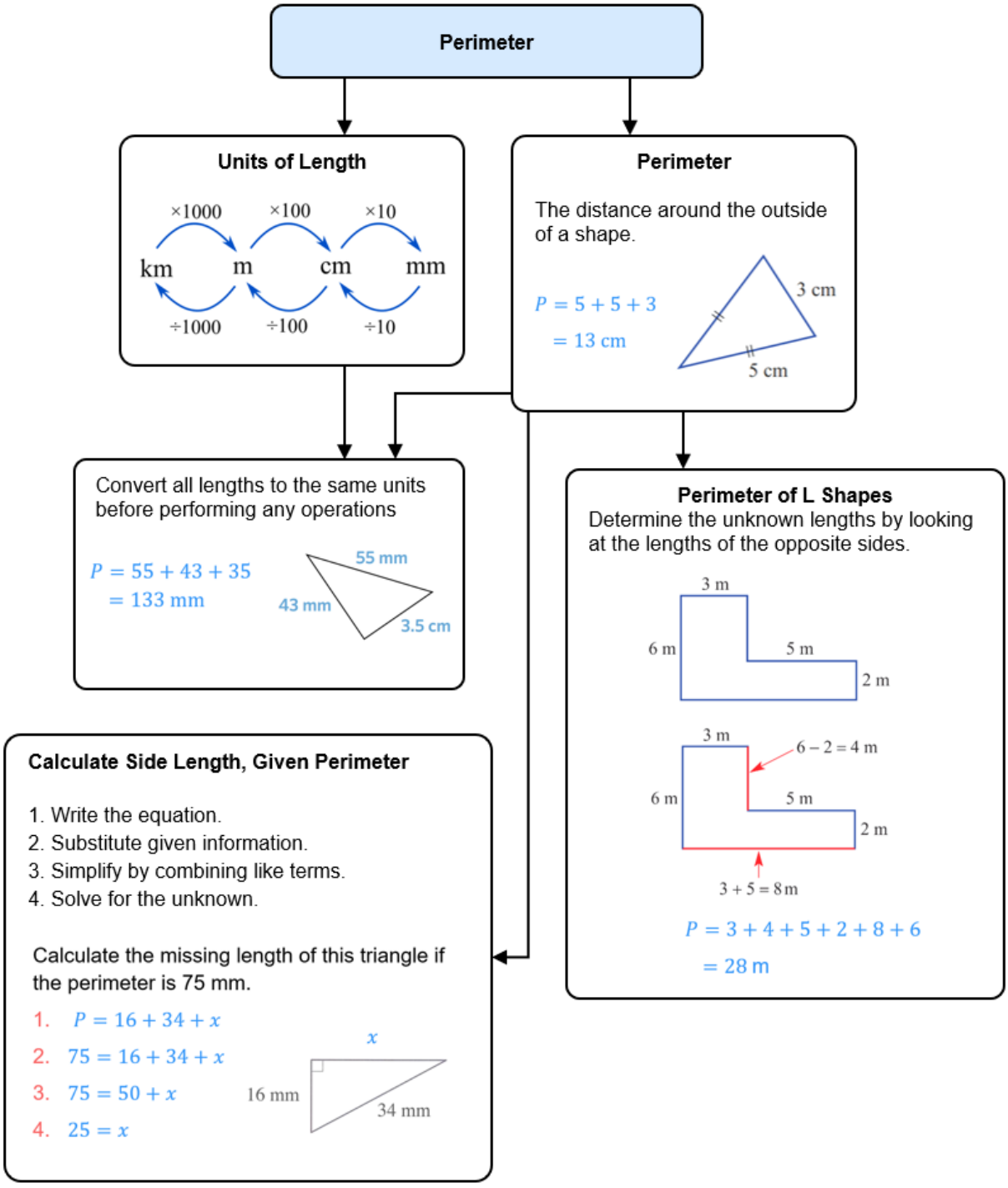
SYLLABUS DOTPOINTS

MA4-LEN-C-01 applies knowledge of the perimeter of plane shapes and the circumference of circles to solve problems

Solve problems involving the perimeter of various quadrilaterals and simple composite figures

- Solve problems involving the perimeter of plane shapes, including parallelograms, trapeziums, rhombuses and kites
- Solve problems relating to the perimeter of simple composite figures
- Compare methods of solution for finding perimeter and evaluate the efficiency of those methods

SUMMARY



REVIEW OF PRIOR KNOWLEDGE

1 Multiply each number by 10.

a	37×10	**b**	0.37×10	**c**	307×10
d	30.7×10	**e**	3.07×10	**f**	0.0307×10

2 Work out the following.

a	46×100	**b**	4.06×100	**c**	406×100
d	460×100	**e**	4.6×1000	**f**	4.06×1000
g	10×4.006	**h**	100×46	**i**	1000×0.46

3 Divide each number by 10.

a	$37 \div 10$	**b**	$0.37 \div 10$	**g**	$307 \div 10$
c	$30.7 \div 10$	**d**	$3.07 \div 10$	**h**	$0.0307 \div 10$

4 Work out the following.

a	$46 \div 100$	**b**	$4.06 \div 100$	**c**	$406 \div 100$
d	$460 \div 100$	**e**	$4.6 \div 1000$	**f**	$4.06 \div 1000$
g	$4.006 \div 10$	**h**	$46 \div 1000$	**i**	$460 \div 1000$

5

a Measure the length of your table using your handspan.
How many handspans long is the table?

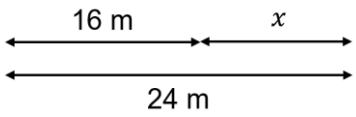
……

b What might be the issue with measuring lengths with handspans?

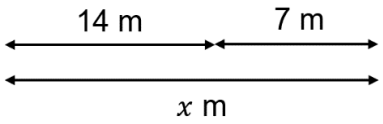
……

6

a



b



7 Find the unknown number to make these equations true.

a	$38 = 29 + \ldots\ldots\ldots$	**b**	$89 + \ldots\ldots\ldots = 98$	**c**	$64 = 12 + 6 + \ldots\ldots\ldots$
d	$9 + \ldots\ldots\ldots = 16$	**e**	$a + 6 + 85 = 95$	**f**	$10 + d = 36.8$
g	$c + 10.3 = 26.3$	**h**	$57 + 12 + x = 93$	**i**	$12.1 + 5 + x = 31.8$

8 Solve these equations using your knowledge of inverse operations.

a	$13 + x = 28$ $-13 \quad -13$ $x = \ldots\ldots$	**b**	$x + 27 = 45$ $\ldots\ldots \quad \ldots\ldots$ $x = \ldots\ldots$	**c**	$8 + x = 30$ $\ldots\ldots \quad \ldots\ldots$ $x = \ldots\ldots$	**d**	$x + 13 = 73$ $\ldots\ldots \quad \ldots\ldots$ $x = \ldots\ldots$
e	$22 + x = 28$	**f**	$x + 17 = 60$	**g**	$160 + x = 300$	**h**	$x + 135 = 170$

9 Solve these equations. Simplify the equation first.

a	$13 + 4 + x = 28$ $17 + x = 28$ $x = \ldots\ldots$	**b**	$x + 12 + 3 = 21$ $x + \ldots\ldots = 21$ $x = \ldots\ldots$	**c**	$x + x = 32$ $\ldots x = 32$ $x = \ldots\ldots$
d	$x + 13 + 12 = 37$	**e**	$x + x + x = 45$	**f**	$x + x + 3 + 7 = 36$

UNITS OF LENGTH

- A **metre** (m) is the basic metric unit used to measure **length**.
  Door handles are about 1 m off the ground.
- All other metric units are related to the metre by powers of 10.
  - 1 kilometre (km) = 1000 metres (m)
  - 1 metre (m) = 100 centimetres (cm)
  - 1 centimetre (cm) = 10 millimetres (mm)
- We have different units of length to avoid using very small or very large numbers.

Example Choose the most appropriate unit of length.

Determine the most appropriate unit to measure these things.

		Millimetre	Centimetre	Metre	Kilometre
a	The length of a swimming pool:	☐	☐	☐	☐
b	The length of a ruler:	☐	☐	☐	☐
c	The length of an ant:	☐	☐	☐	☐
d	The height of an apartment building:	☐	☐	☐	☐

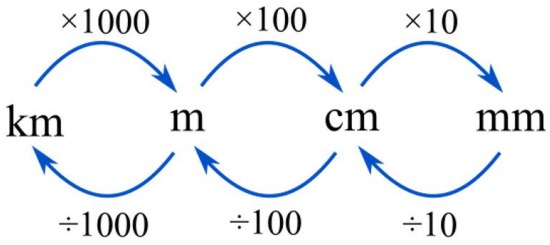
How do we know which unit is the most appropriate?
E.g., why do we measure a carrot as 15 cm, not 0.00015 km?
……

Circle the most appropriate measurement unit for each scenario.

		Millimetre	Centimetre	Metre	Kilometre
a	Length of a tennis court	☐	☐	☐	☐
b	Distance Sydney to Melbourne	☐	☐	☐	☐
c	Length of a school desk	☐	☐	☐	☐
d	Height of a skyscraper	☐	☐	☐	☐
e	Width of a leaf	☐	☐	☐	☐
f	Height of a person	☐	☐	☐	☐

CONVERTING UNITS OF LENGTH

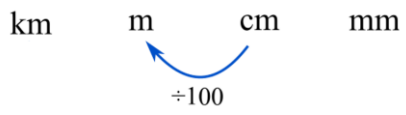
- **When converting to a smaller unit, multiply**.
  A smaller unit means you need more of them, so you multiply.
- **When converting to a larger unit, divide**.
  A larger unit means you need less of them, so you divide.



Example Convert units of length.

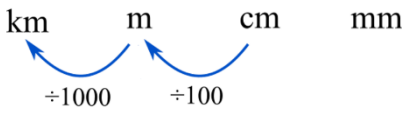
Convert these lengths to the given unit.

400 cm to m



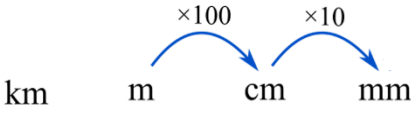
400 cm ÷ 100
= 4 m

738 000 cm to km



738 000 cm ÷ 100 ÷ 1000
= 7.38 km

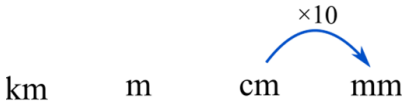
0.808 m to mm



0.808 m × 100 × 10
= 808 mm

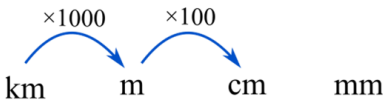
Convert these lengths to the given unit.

a 5 cm to mm



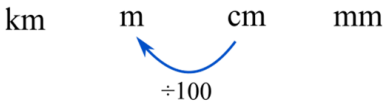
50 mm

b 2.3 km to cm



230 000 cm

c 35 cm to m



0.35 m

d 2.1 m to mm

2100 mm

e 400 mm to m

0.4 m

f 500 cm to km

0.005 km

Key ideas

1. A metre is the basic …… unit used to measure length.
2. Metric units are related to each other based on …… of 10.
3. When converting to a smaller unit, we ……
4. When converting to a larger unit, we ……..

1 Convert these units.

a	0.8 m = …… cm 80	**b**	1.9 cm = …… mm 19	**c**	0.37 m = …… mm 370
d	7.5 cm = …… mm 75	**e**	43 cm = …… m 0.43	**f**	273 mm = …… m 0.273
g	1.6 m = …… cm 160	**h**	0.11 m = …… cm 11	**i**	0.673 m = …… cm 67.3
j	30 mm = …… cm 3	**k**	0.4 m = …… mm 400	**l**	2.03 m = …… cm 203

2 Convert these measurements to the required unit.

a	7 m	= …… cm 700	**g**	3.7 m	= …… cm 370	**m**	30.7 cm	= …… m 0.307
b	70 m	= …… cm 7000	**h**	370 m	= …… cm 37000	**n**	0.307 cm	= …… m 0.00307
c	0.70 m	= …… cm 70	**i**	370 cm	= …… m 3.7	**o**	0.0307 cm	= …… m 0.000307
d	0.7 m	= …… cm 70	**j**	37 cm	= …… m 0.37	**p**	1.0307 cm	= …… m 0.0010307
e	0.07 m	= …… cm 7	**k**	307 cm	= …… m 3.07	**q**	$\frac{1}{2}$ cm	= …… m 0.005
f	3.07 m	= …… cm 307	**l**	3007 cm	= …… m 30.07	**r**	$\frac{1}{2}$ m	= …… cm 50

3 Convert these units of measurement.

a	300 cm	= …… m 3	**e**	4.5 m	= …… mm 4500	**i**	15 km	= …… m 15000
b	30 cm	= …… m 0.3	**f**	4.5 m	= …… cm 450	**j**	1.5 km	= …… m 1500
c	300 mm	= …… m 0.3	**g**	0.45 m	= …… cm 45	**k**	0.1 km	= …… m 100
d	30 mm	= …… m 0.03	**h**	0.05 m	= …… cm 5	**l**	0.05 km	= …… m 50

4 Express each length in the required units.

a 5 m + 30 cm (m) = 5 m + 0.3 m = …… m 5.3	**b** 430 cm + 400 mm (cm) = …… cm + …… cm = …… cm 470	**c** 37 cm + 3 m (cm) = …… + …… = …… cm 337
d 831 cm + 2 km (m) = …… = …… 2008.31	**e** 19 cm – 50 mm (mm) = …… = …… 140	**f** 574 cm – 40 mm (cm) = …… = …… 570
g 18 m – 370 mm (m) = …… = …… 17.63	**h** 10 km – 3380 cm (km) = …… = …… 9.9662	**i** 0.091 km – 777 cm (m) = …… = …… 83.23

5 Fill in the table.

	km	m	cm	mm
a	1	1000	100 000	1000 000
b	0.001	1	100	1000
c	0.000 01	0.01	1	10
d	0.000 001	0.001	0.1	1
e	0.000 01	0.01	1	10
f	0.00017	0.17	17	170
g	0.0017	1.7	170	1700
h	1.07	1070	107 000	1 070 000
i	0.07	70	7000	70 000
j	0.000 07	0.07	7	70
k	0.000 0007	0.0007	0.07	0.7
l	0.00025	$\frac{1}{4}$	25	250
m	$0.001n$	n	$100n$	$1000n$

6 Joe widens a 1.2 m doorway by 50 mm. What is the new width of the doorway, in centimetres?

125 cm

7 A ream of 500 sheets of paper is 4 cm thick. How thick is 1 sheet of paper, in millimetres?

40 mm ÷ 500 = 0.08 mm

8 Mount Everest is moving with the Indo-Australian plate at a rate of about 10 cm per year. How many years will it take to move 5 km?

500 000 cm ÷ 10 cm/year = 50 000 years

9 Adrian is driving a truck 3.4 m high.
He approaches an overpass bridge which has a clearance of 376 cm.
Will Adrian's truck get under the bridge? If so, how much room does he have to spare?
Give your answer in centimetres.

Since 340 cm < 376 cm, the truck will fit under the bridge.

Room to spare: 376 cm - 340 cm = 36 cm

10 Global sea levels are rising on average 37 mm per year.
How many years would it take for the sea level to rise 2 metres?

2000 mm ÷ 37 mm/year = 54.05 years ≈ 54 years

11 NAPLAN B

Wooden beams for building house frames can be purchased in a number of lengths.
A hardware store can supply lengths of 850 millimetres, 80 centimetres, 190 centimetres, 0.855 metres and 1.8 metres.
Which wooden beam is the longest?

850 mm = 850 mm

80 cm = 800 mm

190 cm = 1900 mm

0.855 m = 855 mm

1.8 m = 1800 mm

The longest beam is 190 centimetres (1900 mm).

12 NAPLAN B

Which of these is the longest distance?

0.1309 km ⬭ 139 m ⬭ 1390 cm ⬭ 13090 mm ⬭

0.1309 km = 130.9 m

139 m = 139 m

1390 cm = 13.9 m

13090 mm = 13.09 m

The longest distance is 139 m.

13 NAPLAN B

2 kilometres and 80 metres is the same as

280 km ⬭ 2.08 km ⬭ 2008 m ⬭ 2.80 m ⬭

2.08 km.

14 NAPLAN B+

Five people had sticks of different lengths. Each person measured a 30 metre interval by counting how many stick lengths it took.
The results were put into the table.

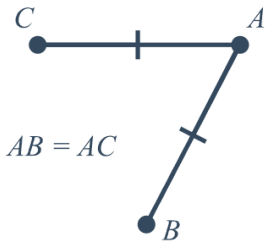
Who had the stick that was 60 cm long?

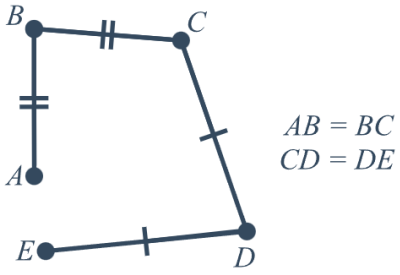
Simon, since 3000 cm ÷ 60 cm = 50

Person	Stick lengths
John	24
Caroline	30
Paul	40
Simon	50
Ken	60

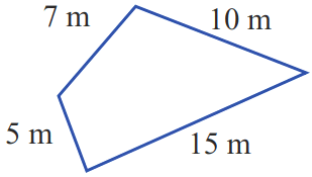
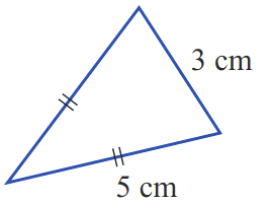
PERIMETER OF POLYGONS

- **Perimeter** is the distance around a two-dimensional (flat) shape.
- To find perimeter, add up the lengths of every side of the shape.
- Words that mean length: **dimensions**, **width**, **side**, **breadth**, **base**, **height**.
- Dashes show equal lengths.



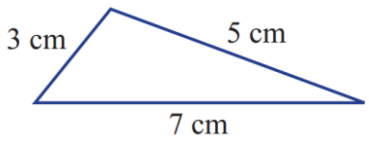


Example Calculate perimeter of a polygon.

Find the perimeter of these shapes.  $P = 7 + 10 + 15 + 5$ $= 37$ m	How do we find the perimeter of a shape? *The perimeter is the ..... of all side lengths of a shape.*
 $P = 5 + 5 + 3$ $= 13$ cm	What do the dashes mean? *Dashes mean the sides have the same .....*

Calculate the perimeter of each of these shapes.

a

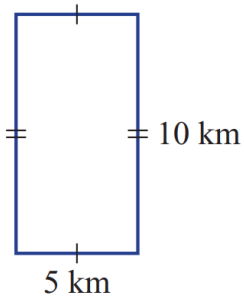


$P =$ ..... + ... + ...

$=$ ..... cm

15 cm

b

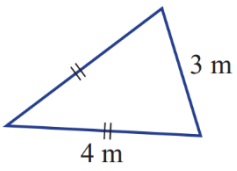


$P =$ .....

$=$ ....

30 km

c



$P =$ .....

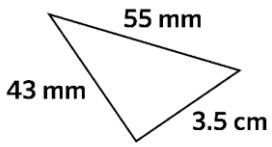
$=$ ....

11 m

- Before performing any operations, the units must be the same.

Example Calculate perimeter involving different units.

Find the perimeter of the shape.



$P = 55 + 43 + 35$

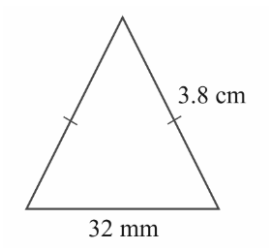
$= 133$ mm

What do you need to ensure is the same before calculating the perimeter?

Before any calculations, the ..... must be the same.

Find the perimeter of these shapes. Give your answer in millimetres.

a

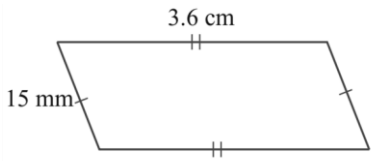


$P = 32$ mm $+$ ..... mm $+$ ..... mm

$=$ .....

108 mm

b

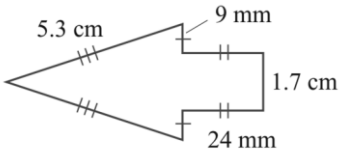


$P =$ .....

$=$ .....

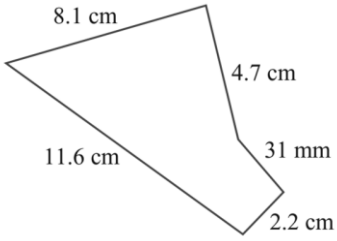
102 mm

c



189 mm

d



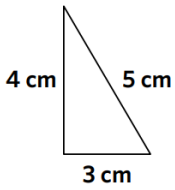
297 mm

Key ideas

1. Perimeter is the distance ..... a shape.
2. Calculate perimeter by ..... the length of each side.
3. Equal lengths are shown using .....
4. When adding two measurements, we need to ensure that the ..... are the same.

1 Calculate the perimeter of these shapes.

a

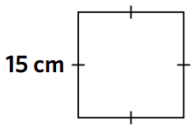


P = …… + …… + ……

= …… ……

12 cm

b

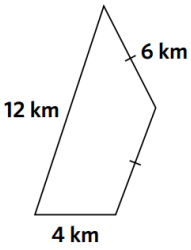


P = …… + …… + …… + ……

= …… ……

60 cm

c

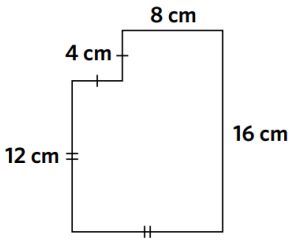


P = …… + …… + …… + ……

= …… ……

28 cm

d



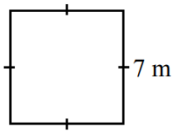
P = …… + …… + …… + …… + ……

= …… ……

56 cm

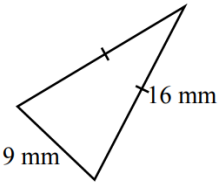
2 Calculate the perimeter of these shapes. Remember to use multiplication for repeated addition.

a



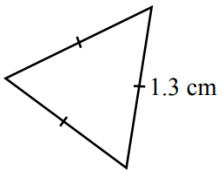
28 m

b



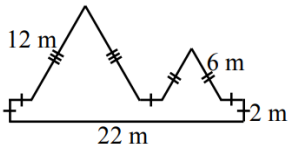
41 mm

c



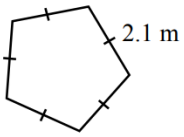
3.9 cm

d



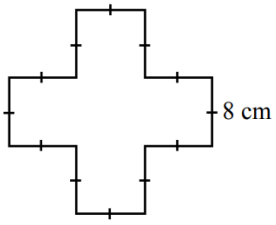
68 m

e



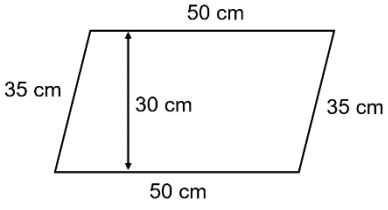
10.5 m

f



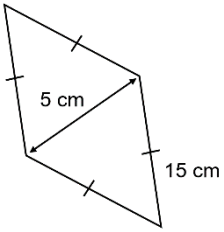
96 cm

g



170 cm

h



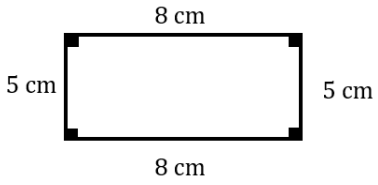
60 cm

i Why is 30 cm and 5 cm *not* part of the perimeter in parts **g** and **h**?

Those lengths are not on the outside of the shape.

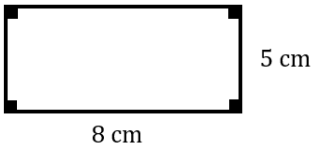
3 Calculate the perimeter of these rectangles.

a



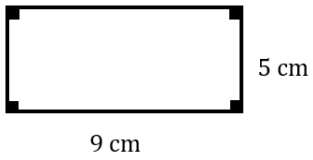
26 cm

b



26 cm

c

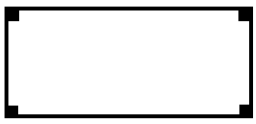


28 cm

d

26 cm

e



52 cm

f

5.2 cm

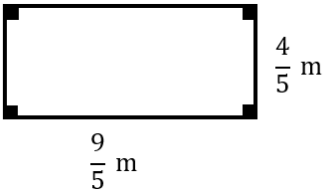
g

5.2 m

h

5.2 m

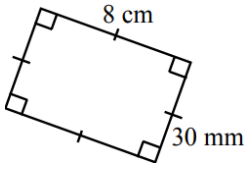
i



$\frac{26}{5}$ m

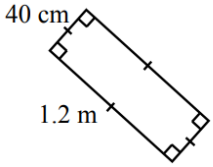
4 Calculate the perimeter of these shapes. Give your answer in the smaller unit.

a



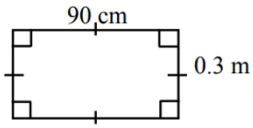
22 cm

b



320 cm

c



240 cm

5 The width of a rectangle is 6.7 cm. Its length is 4.6 cm longer than its width.
Find the perimeter of the rectangle. (Hint: draw a diagram!)

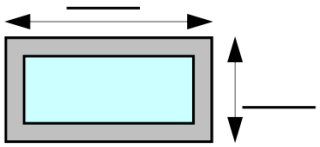
36 cm

6 A rectangular swimming pool has sides with lengths 12 m and 4 m.

a Find the distance around the pool.

32 m

b A path 1 m wide surrounds the same pool. Calculate the length and breadth of the pool and the path combined, put the dimensions on the diagram below and find the perimeter



New dimensions are 14 m by 6 m

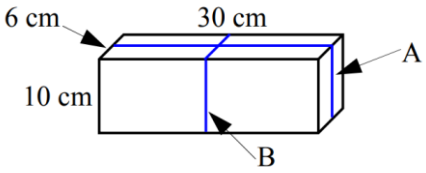
New perimeter 40 m

c If the pool has a safety fence around the outside of the path find the cost of fencing the pool when the fence costs $27 per metre

$40 \times 27 = \$1080$

7 A gift is wrapped with two ribbons as shown below.

a Calculate the length of the string A and string B, then add them to find the total length.



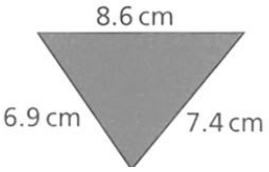
112 cm

b If you wanted to wrap 50 of these gifts the same way, how much ribbon would you need, if 5 cm of ribbon is wasted for each box during the wrapping process?

$50 \times 112 + 5 \times 50 = 5850$ cm

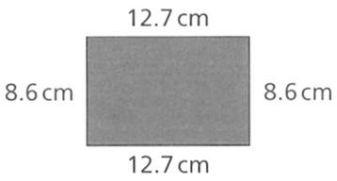
8 Find the perimeter of each of these shapes. Answer in cm.

a



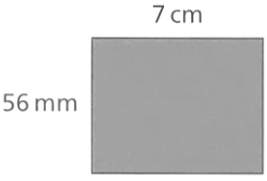
22.9 cm

b



42.6 cm

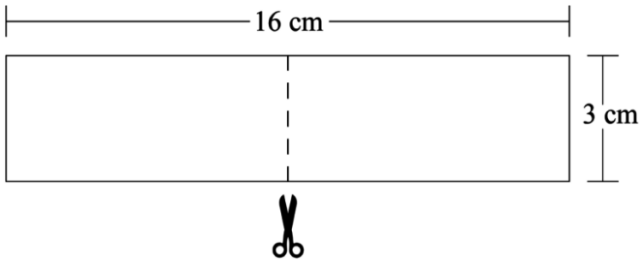
c

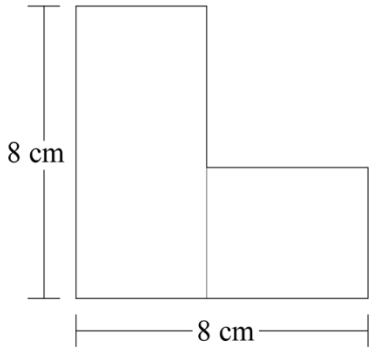


25.2 cm

9 NAPLAN B+

Pablo cuts a paper rectangle in half. He then places one half over the other to make a new shape. What is the perimeter of the new shape?

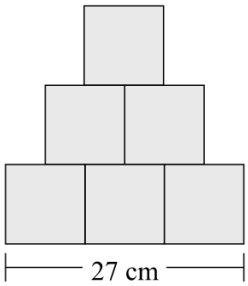




32 cm

10 NAPLAN B+

Penelope made a shape using 6 identical squares. What is the perimeter of the shape?



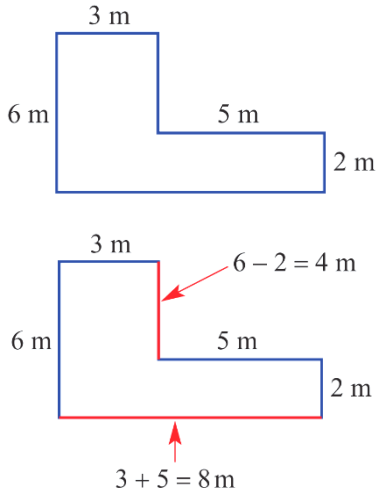
108 cm

PERIMETER OF L-SHAPES

- **L-shapes** have only straight lines and right angles.
- Find unknown lengths by looking at the opposite sides.

Example Calculate perimeter of shapes involving right angles and straight lines.

Label all sides of this shape then calculate its perimeter.



$P = 3 + 4 + 5 + 2 + 8 + 6$

$= 28$ m

How did we find the length of the bottom?

The top length is the same as the bottom.

We added the two lengths at the ……., …… and ……

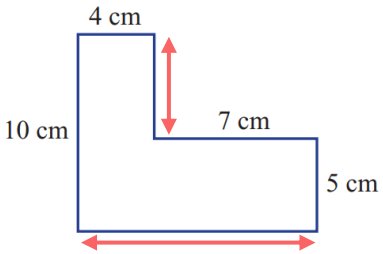
How did we find the length of the right side?

The left side is ……., so the right side must add to ……

To find the missing length, we subtracted …… from ……

Find the perimeter of each L-shape.

a

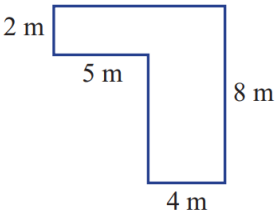


$P =$ ……

$=$ …… ……

42 cm

b

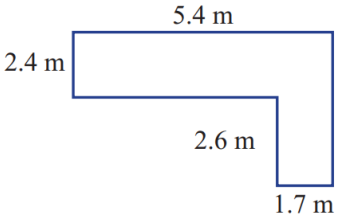


$P =$ ……

$=$ …… ……

34 m

c



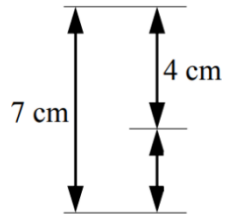
$P =$ ……

$=$ …… ……

20.8 m

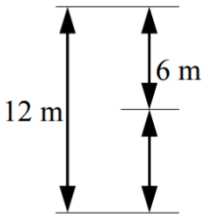
1 Calculate the missing lengths.

a



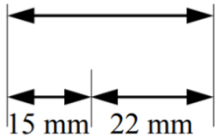
3 cm

b



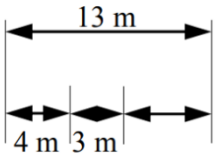
6 m

c



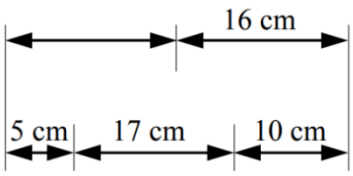
37 mm

d



6 m

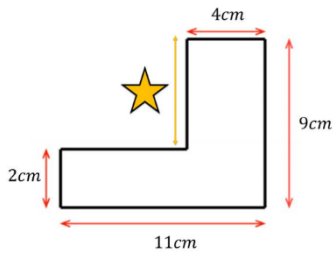
e



16 cm

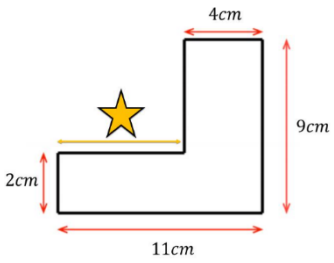
2 Label the unknown side indicated by the star in each of these shapes, if possible.
Do not find the perimeter.

a



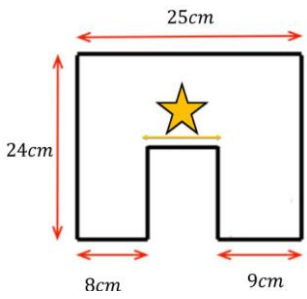
7 cm

b



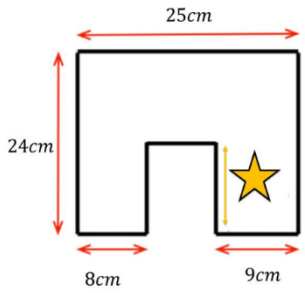
7 cm

c



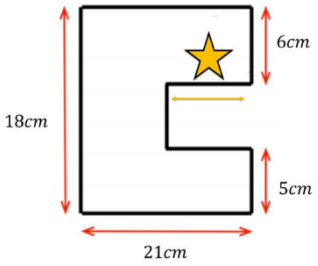
8 cm

d



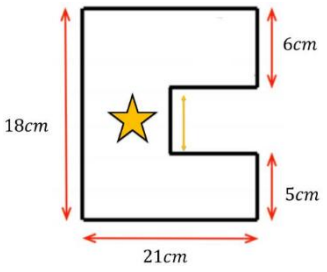
unknown

e



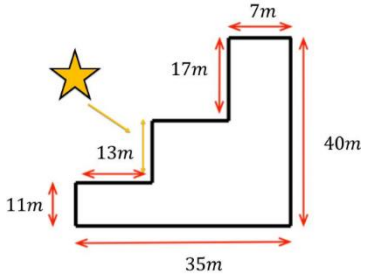
unknown

f



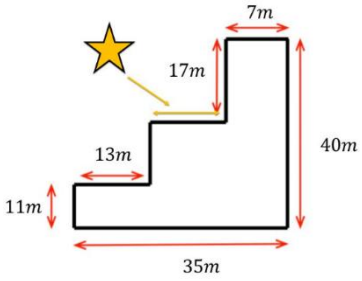
7 cm

g



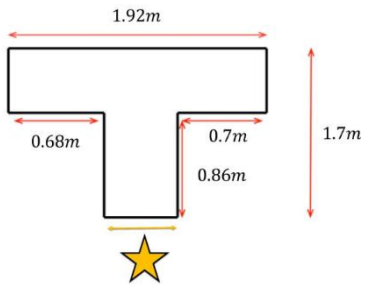
12 m

h



15 m

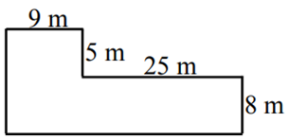
i



0.54 m

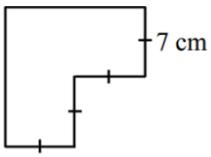
3 Calculate the perimeter of each of these shapes.

a



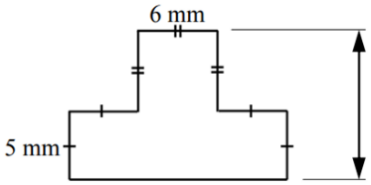
94 m

b



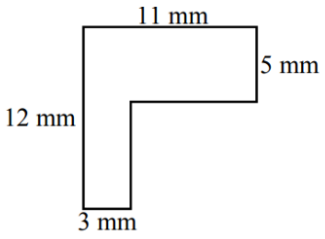
56 cm

c



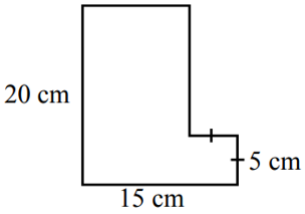
54 cm

a



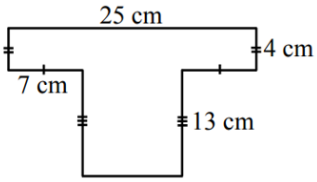
46 mm

b



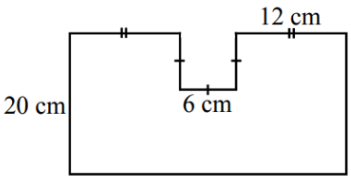
70 cm

c



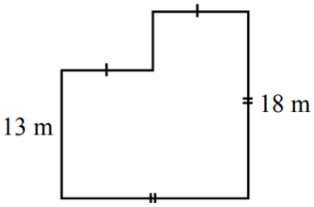
84 cm

d



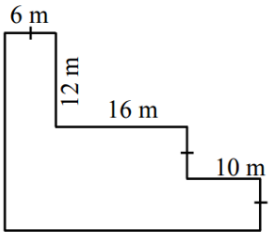
112 cm

e



72 cm

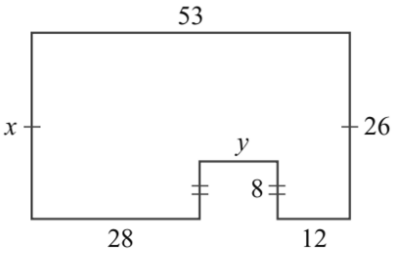
f



112 cm

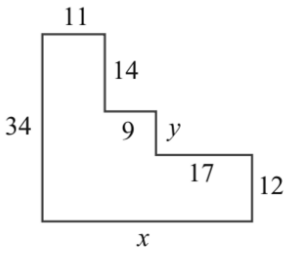
4 Calculate the perimeter of these shapes. All measurements are in cm.

a



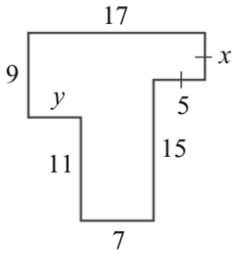
174 cm

b



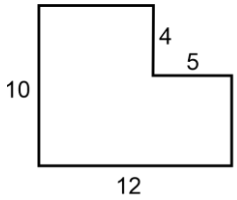
142 cm

c

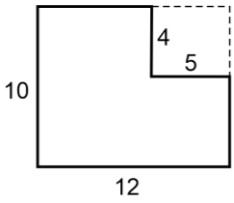


74 cm

5 Consider the two methods for find the perimeter of this shape:

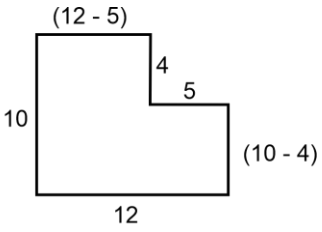


Method 1:



12 + 10 + 12 + 10
= 44

Method 2:



12 + 10 + 6 + 5 + 4 + 7
= 44

a For each method, describe what was done to work out the perimeter.

Method 1: We "pushed" the inside edges out, creating a rectangle.

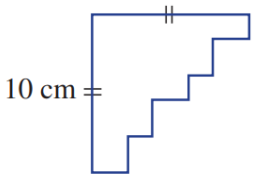
Method 2: We found the missing sides by subtraction.

b Which method do you think is more efficient?

First method

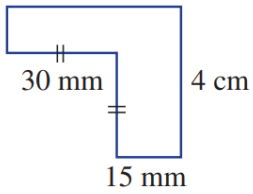
6 Calculate the perimeter, using the method you prefer.

a



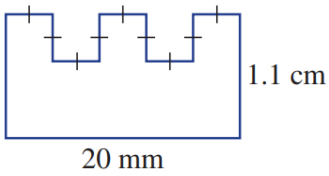
40 cm

b



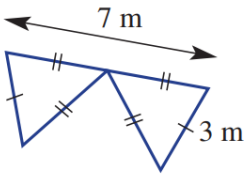
17 cm

c



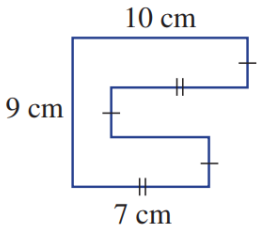
78 cm

d



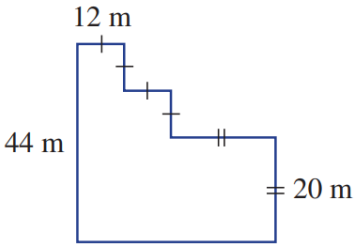
20 m

e



46 cm

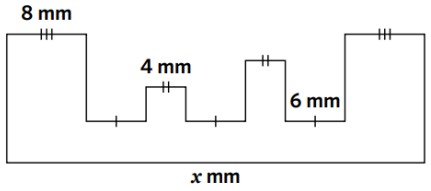
f



176 m

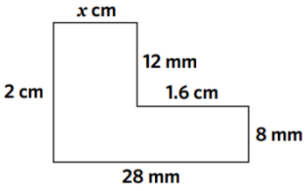
7 Find the value of x

a



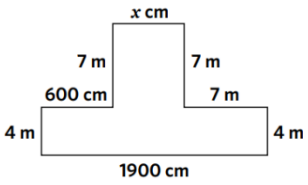
42 mm

b



12 mm

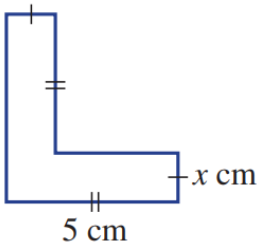
c



600 cm

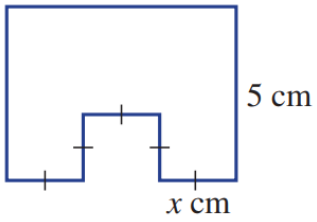
8 Find the unknown value x, given the perimeter.

a $P = 24$ cm



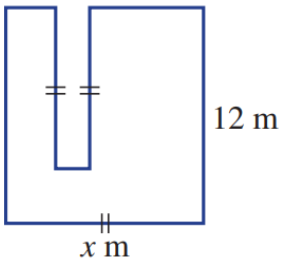
2 cm

b $P = 34$ cm



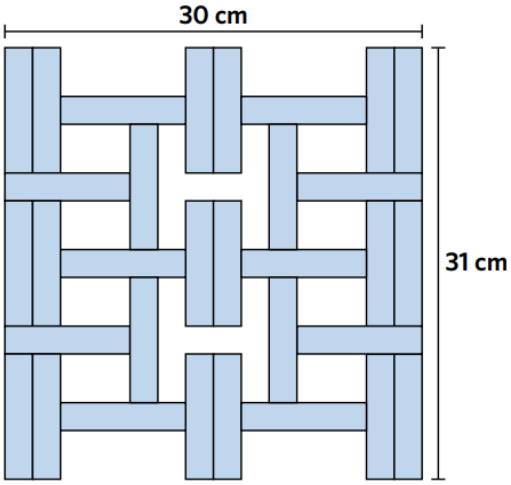
3 cm

c $P = 60$ m



9 m

9 Determine the length and width of each of the small identical rectangles.



$6x + 2y = 30$

$2x + 3y = 31$

By guess and check:

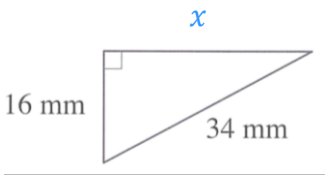
$y = 9$

$x = 2$

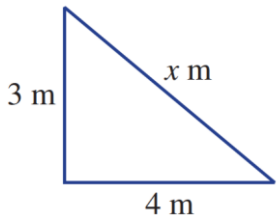
SOLVING PERIMETER PROBLEMS

- To find an unknown side length, given the perimeter:
  1. Write the equation.
  2. Substitute given information.
  3. Simplify by combining like terms.
  4. Solve for the unknown.

Example Calculate side length, given perimeter.

Calculate the missing length of this triangle if the perimeter is 75 mm.	What does x represent in this scenario?
 1. $P = 16 + 34 + x$ 2. $75 = 16 + 34 + x$ 3. $75 = 50 + x$ 4. $25 = x$	Annotate the solution to show what is happening between each line.

a $P = 12$ m



$P = 3 + 4 + x$

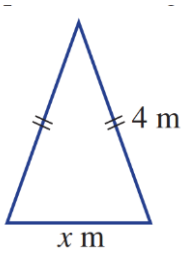
$\ldots\ldots = 3 + 4 + x$

$\ldots\ldots = \ldots\ldots + x$

$\ldots\ldots = x$

$x = 5$ m

b $P = 10$ m



$P = \ldots\ldots + \ldots\ldots + x$

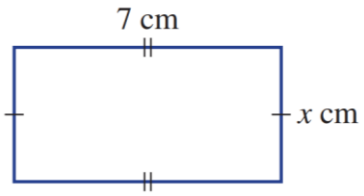
$\ldots\ldots$

$\ldots\ldots$

$\ldots\ldots$

$x = 2$ m

c $P = 22$ m



$P = \ldots\ldots$

$\ldots\ldots$

$\ldots\ldots$

$\ldots\ldots$

$x = 4$ cm

Key ideas

1. Write an …… with x as the unknown side.
2. …… given information into the equation.
3. Simplify the equation by combining …… terms.
4. Solve the equation by applying …… operations to …… sides.

1 All of these shapes have perimeter 50 cm. Find the lengths of the missing sides.
All lengths are given in centimetres.

a

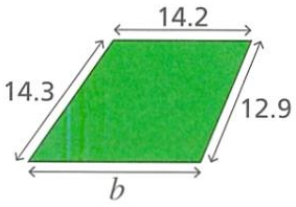
$P = 19 + 17 + a$

$50 = 36 + a$

$\ldots\ldots\ldots = a$

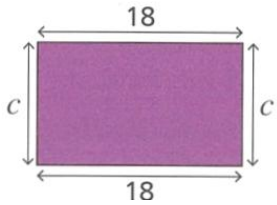
14 cm

b



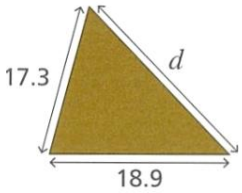
8.6 cm

c



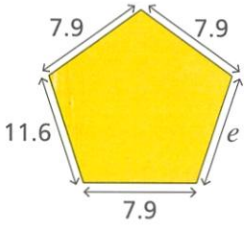
7 cm

d



13.8 cm

e



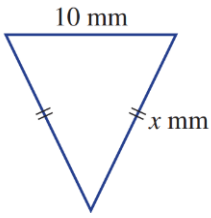
14.7 cm

f Find the side length of a square with perimeter 50 cm.

12.5 cm

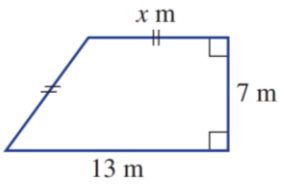
2 Find the missing length in these shapes. The perimeter is given.

a $P = 46$ mm



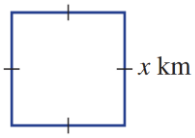
18 mm

b $P = 39$ m



9.5 m

c $P = 26$ km



6.5 cm

3 The length of a rectangle is 6.7 cm. Its perimeter is 22.6 cm. Find the width of the rectangle.
(Hint: Draw a diagram. Label the width x)

4.6 cm

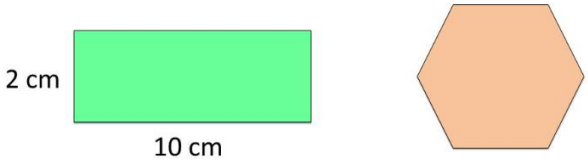
4 A rectangle has a perimeter of 126 cm. Calculate the breadth if the length is 0.3 m.

33 cm

5 A rectangular garden bed is twice as long as it is wide.
Calculate the length and width if the perimeter is 72 cm.

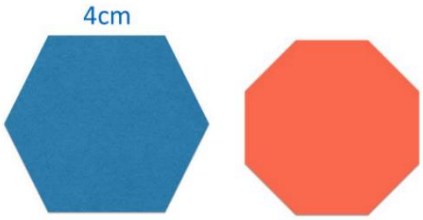
12 cm

6 The perimeter of the two shapes are equal. Work out the side length of the regular hexagon.



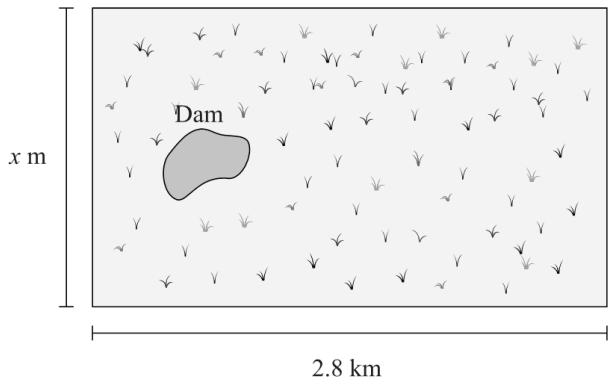
4 cm

7 The perimeter of the two shapes is equal. Work out the side length of the regular octagon.



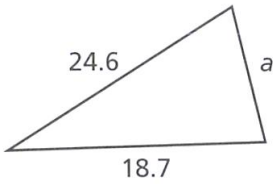
3 cm

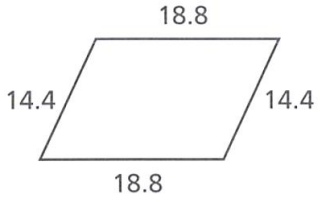
8 Aragorn is fencing a paddock on his property. The total length of fencing he requires is 8.2 kilometres. The length of the paddock is 2.8 kilometres. How wide is the paddock? Answer in kilometres rounded to 1 decimal place.



1.3 km

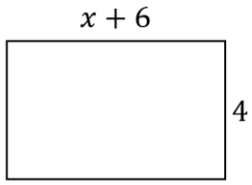
9 These two shapes have the same perimeter. What is the length of the missing side? All measurements are in cm.





23.1 cm

10 Find the value of x if the perimeter is 30 cm.



5 cm

CHECK YOUR UNDERSTANDING

Units of length

1 Convert 8.06 kilometres to metres.

a 806 m **b** 8060 m **c** 8006 m **d** 80.6 m

2 How many cm is 1250 mm?

a 12 500 **b** 125.9 **c** 12.5 **d** 125

3 How many millimetres in 7 kilometres?

a 7 000 000 **b** 0.7 **c** 0.007 **d** 0.000 007

4 2.3 m + 130 cm =

a 3.6 cm **b** 132.3 cm **c** 153 cm **d** 360 cm

5 1800 m + 3.78 km =

a 1803.78 m **b** 3.96 km **c** 5.58 km **d** 2178 m

6 A piece of wood is 4 m long. 75 cm is removed from one end. How long is the piece of wood now?

a 3925 cm **b** 35 cm **c** 3.25 cm **d** 325 cm

7 Tom rides his bike for 450 m. He then rides his bike a further 1.7 km. How far does he ride his bike in total?

a 2150 m **b** 451.7 cm **c** 620 m **d** 451.7 km

8 Harry is doing a 1.7 km walk. He walks 270 m. How much further does he need to walk?

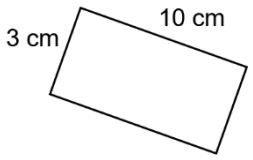
a 800 m **b** 1430 m **c** 1530 m **d** 1.5 km

9 10 mm is cut from a 1 metre ribbon. How much ribbon is left?

a 990 cm **b** 99 cm **c** 999 cm **d** 99.9 cm

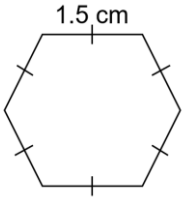
Perimeter of polygons

1 What is the perimeter of this rectangle?



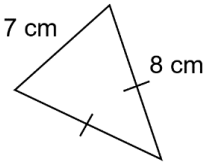
a 13 cm **b** 30 cm **c** 26 cm **d** 23 cm

2 What is the perimeter of this hexagon?



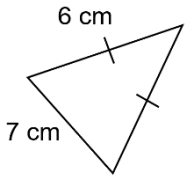
a 6.3 cm **b** 7.5 cm **c** 9 cm **d** Not enough information

3 What is the perimeter of the triangle?



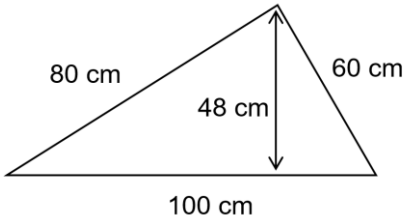
a 22 cm **b** 23 cm **c** 56 cm **d** 28 cm

4 What is the perimeter of the triangle?



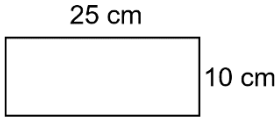
a 42 cm **b** 19 cm **c** 13 cm **d** 20 cm

5 What is the perimeter of the triangle?



a 140 cm **b** 240 cm **c** 288 cm **d** 480 cm

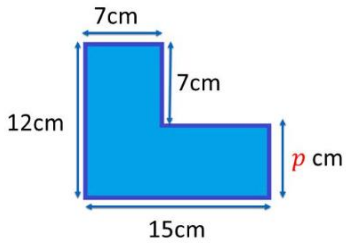
6 What is the perimeter of this rectangle, in metres?



a 0.35 m **b** 3500 m **c** 7000 m **d** 0.7 m

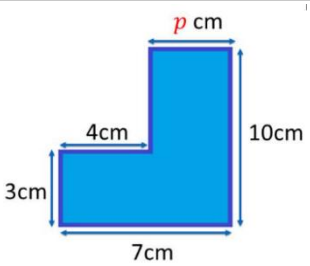
Perimeter of L shapes

1 What is the value of p?



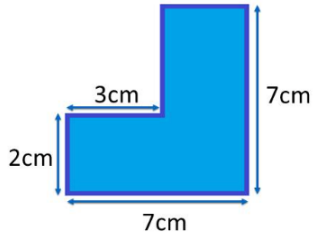
a 5 cm **b** 6 cm **c** 7 cm **d** Not enough information

2 What is the value of p?



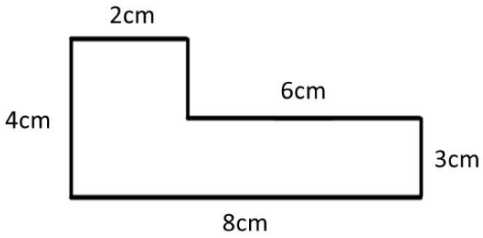
a 4 cm **b** 3 cm **c** 3.5 cm **d** Not enough information

3 What is the perimeter of this shape?



a 28 cm **b** 19 cm **c** 24 cm **d** 23 cm

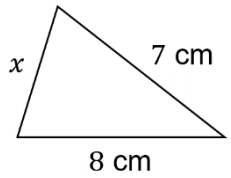
4 What is the perimeter of the shape?



a 23 cm **b** 23 m **c** 24 m **d** 24 cm

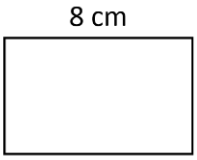
Solving perimeter problems

11 The perimeter of the triangle is 18 cm. Find the value of x



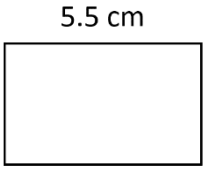
a 15 cm **b** 8 cm **c** 18 cm **d** 3 cm

12 The perimeter of the rectangle is 24 cm. Find the missing width.



a 3 cm **b** 16 cm **c** 4 cm **d** 8 cm

13 The perimeter of the rectangle is 33 cm. Find the missing width.



a 3 cm **b** 16 cm **c** 4 cm **d** 8 cm

14 A rectangle has a perimeter of 36 mm. Its length is double its width.
What is the width of the rectangle?

a 18 mm **b** 9 mm **c** 12 mm **d** 6 mm