

Year 5 Week beginning June 22nd

This week your maths will focus on area and perimeter.

REMEMBER TO COMPLETE THE QUIZ ON FRIDAY AND SELF-MARK THE REST.

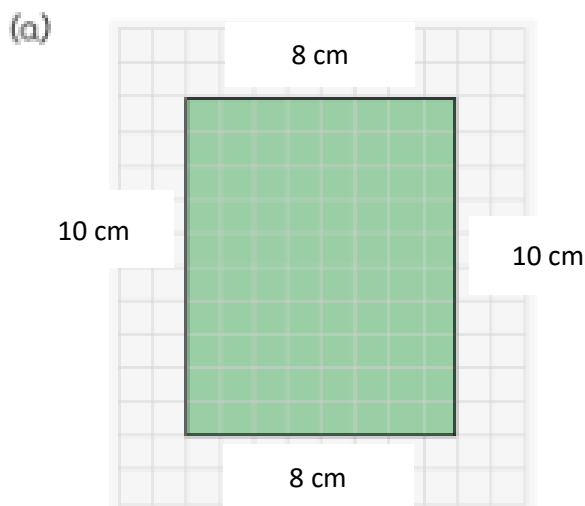
MONDAY 22nd JUNE

Complete MyMaths

TUESDAY 23rd JUNE

RED QUESTIONS

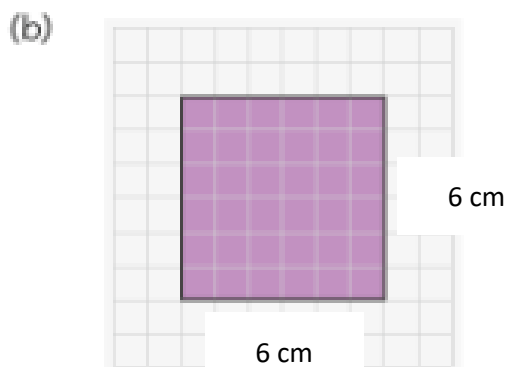
Use the measurements to calculate the perimeter of these shapes. (They are not drawn to scale).



a) Perimeter = $8 + 10 + 8 + 10$

= 36 cm

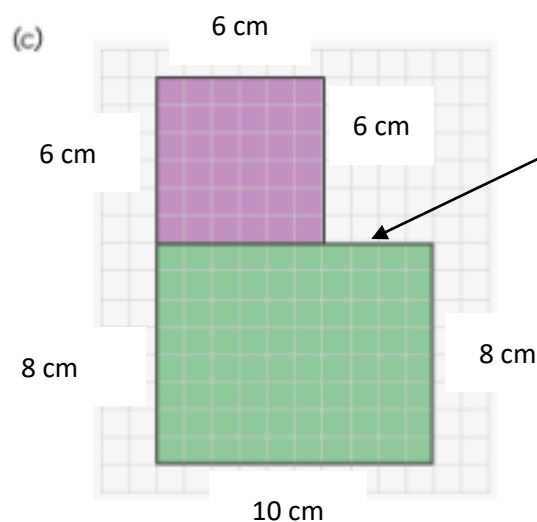
OR $(2 \times 8) + (2 \times 10) = 16 + 20 = 36$ cm



b) Perimeter = $6 + 6 + 6 + 6$

= 24 cm

OR $4 \times 6 = 24$ cm



Remember to calculate the length of this edge.

It is the difference between

$10 - 6 = 4$ cm

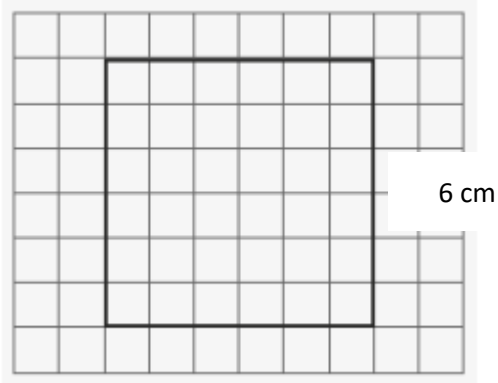
Perimeter = $6 + 6 + 4 + 8 + 10 + 8 + 6$

= 48 cm

BLUE QUESTIONS

1. Calculate the perimeter of each figure.

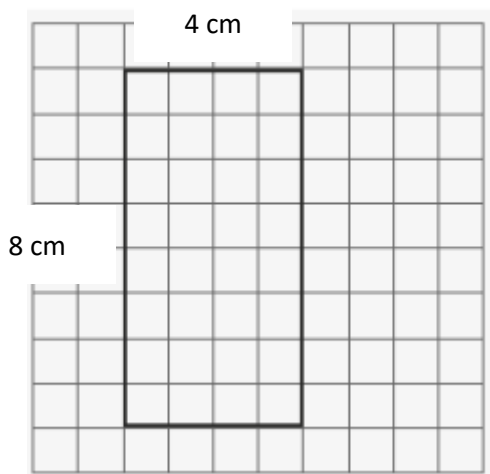
a)



$$\text{Perimeter} = 6 + 6 + 6 + 6 = 24 \text{ cm}$$

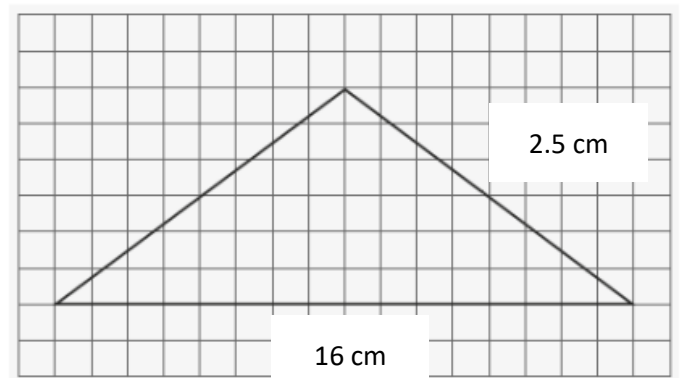
$$\text{or } 4 \times 6 \text{ cm} = 24 \text{ cm}$$

b)



$$\text{b) Perimeter} = 4 + 8 + 4 + 8 = 24 \text{ cm}$$
$$\text{or } (2 \times 4) + (2 \times 8) = 8 + 16 = 24 \text{ cm}$$

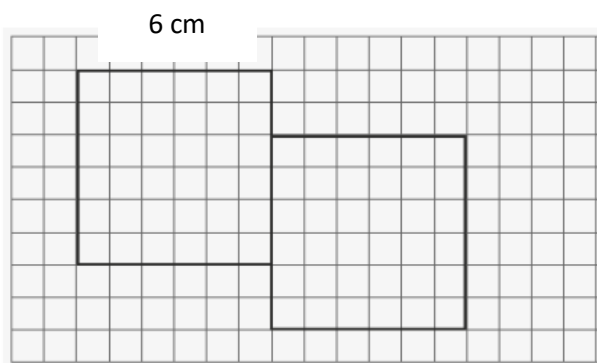
c)



$$\text{c) Perimeter} = 16 + 2.5 + 2.5 = 16 + 5 = 21 \text{ cm}$$

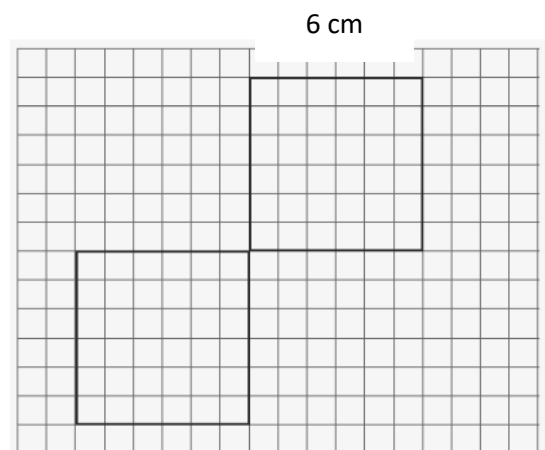
2. Find the perimeter of these figures. Remember that you will need to work out the missing lengths.

a)



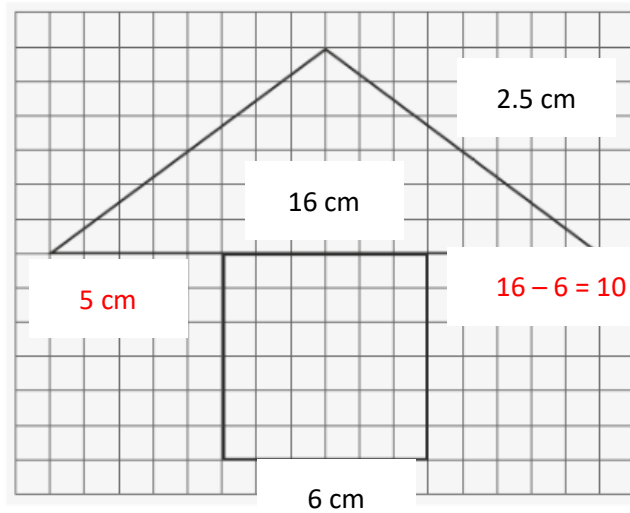
$$\text{a) Perimeter} = 6 + 2 + 6 + 6 + 6 + 2 + 6 + 6$$
$$= 40 \text{ cm}$$

b)



$$\text{b) Perimeter} = 8 \times 6 \text{ cm} = 48 \text{ cm}$$
$$\text{or } 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 48 \text{ cm}$$

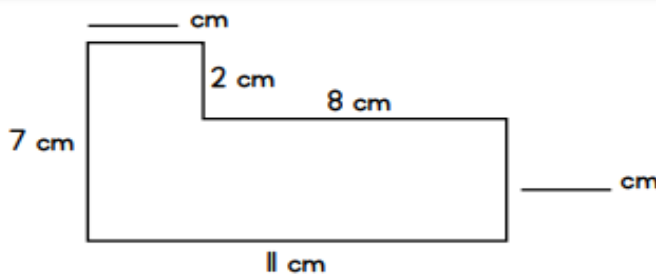
c)



$$\text{Perimeter} = 2.5 + 5 + 6 + 6 + 6 + 5 + 2.5 = 33 \text{ cm}$$

YELLOW QUESTIONS

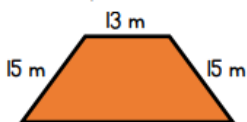
1. Find the missing lengths. Calculate the perimeter of the shape.



$$\begin{aligned} \text{Top edge} &= 11 - 8 = 3 \text{ cm} \\ \text{Right hand edge} &= 7 - 2 = 5 \text{ cm} \end{aligned}$$

$$\text{Perimeter} = 3 + 2 + 8 + 5 + 11 + 7 = 36 \text{ cm}$$

2. The perimeter of this shape is 60m. Find the length of the missing edge.

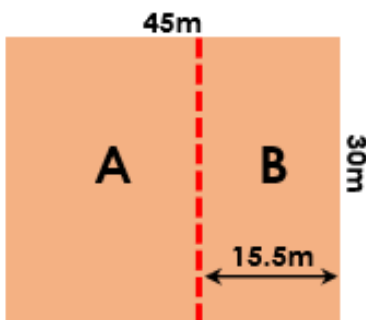


$$\begin{aligned} \text{Perimeter} &= 60 \text{ m} \\ 13 + 15 + 15 &= 43 \text{ m} \end{aligned}$$

$$\text{Missing edge} = 60 - 43 = 17 \text{ m}$$

$$\text{Check: } 13 + 15 + 15 + 17 = 60 \text{ m}$$

3. Ronnie cuts along the dotted line. He thinks the new perimeters are: A = 119m and B = 91m.



Shape A

$$\text{Edges are } 30 \text{ m and } 45 - 15.5 = 29.5 \text{ m}$$

$$\text{Perimeter} = (2 \times 30) + (2 \times 29.5) = 60 + 59 = 119 \text{ m}$$

Shape B

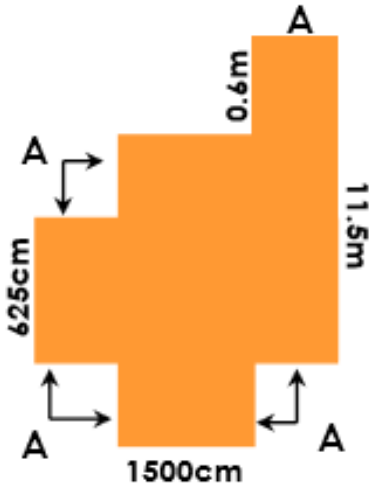
$$\text{Edges are } 30 \text{ m and } 15.5 \text{ m}$$

$$\text{Perimeter} = (2 \times 30) + (2 \times 15.5) = 60 + 31 = 91 \text{ m}$$

Ronnie is correct.

Is Ronnie correct? Prove it.

4. The perimeter of this shape is 69m.
The sides labelled A are of equal length.
What is the length of A? Prove it.



Perimeter = 69 m

$$\begin{aligned} P &= A + 11.5 \text{ m} + A + A + 1500 \text{ cm} + A + A + 625 \text{ cm} + A + A + \\ &\quad 1500 \text{ cm} + 0.6 \text{ m} \\ &= (7 \text{ lots of } A) + 11.5 \text{ m} + 15 \text{ m} + 6.25 \text{ m} + 15 \text{ m} + 0.6 \text{ m} \\ &= (7 \text{ lots of } A) + 48.35 \text{ m} \end{aligned}$$

$$\text{So } 7 \text{ lots of } A = 69 - 48.35 \text{ m} = 20.65$$

$$A = 20.65 \div 7 = 2.95 \text{ m}$$

Check:

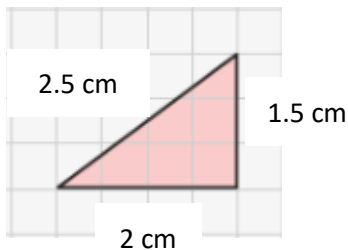
$$\begin{aligned} &2.95 + 11.5 + 2.95 + 2.95 + 15 + 2.95 + 2.95 + 6.25 + 2.95 + 2.95 + 15 + 0.6 \\ &= 69 \text{ m} \end{aligned}$$

WEDNESDAY 24th JUNE

RED QUESTIONS

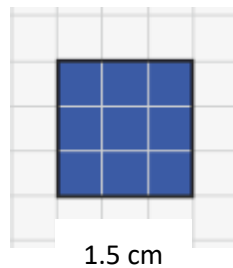
Find the perimeter of each shape.

a)



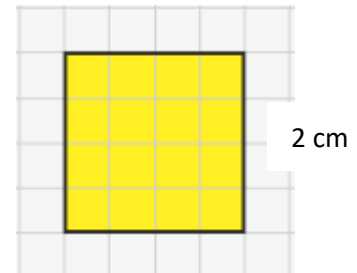
$$\begin{aligned} \text{a) } P &= 2.5 + 1.5 + 2 \\ &= 6 \text{ cm} \end{aligned}$$

b)



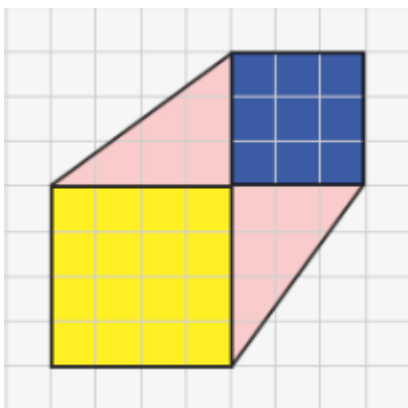
$$\begin{aligned} \text{b) } P &= 4 \times 1.5 \\ &= 6 \text{ cm} \end{aligned}$$

c)



$$\begin{aligned} \text{c) } P &= 4 \times 2 \\ &= 8 \text{ cm} \end{aligned}$$

- d) Use the measurements from a), b) and c) to calculate the perimeter of this shape.

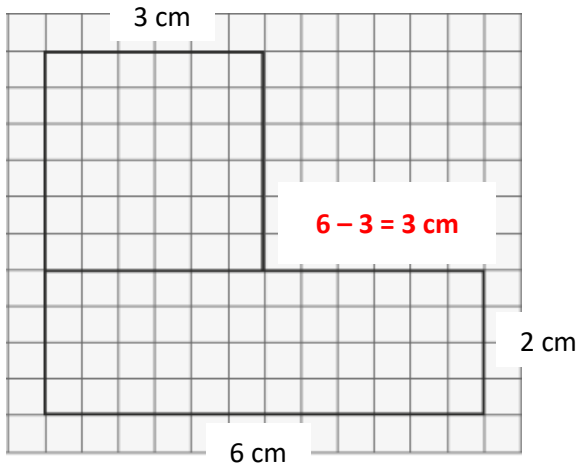


$$\begin{aligned} P &= 1.5 + 1.5 + 2.5 + 2 + 2 + 2.5 \\ &= 12 \text{ cm} \end{aligned}$$

BLUE QUESTIONS

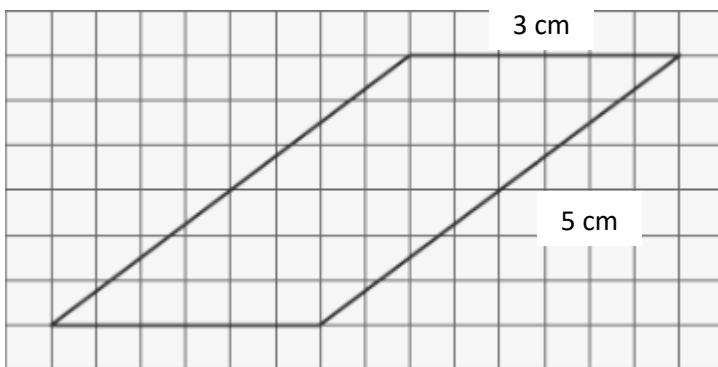
1. Calculate the perimeter of each figure.

a)



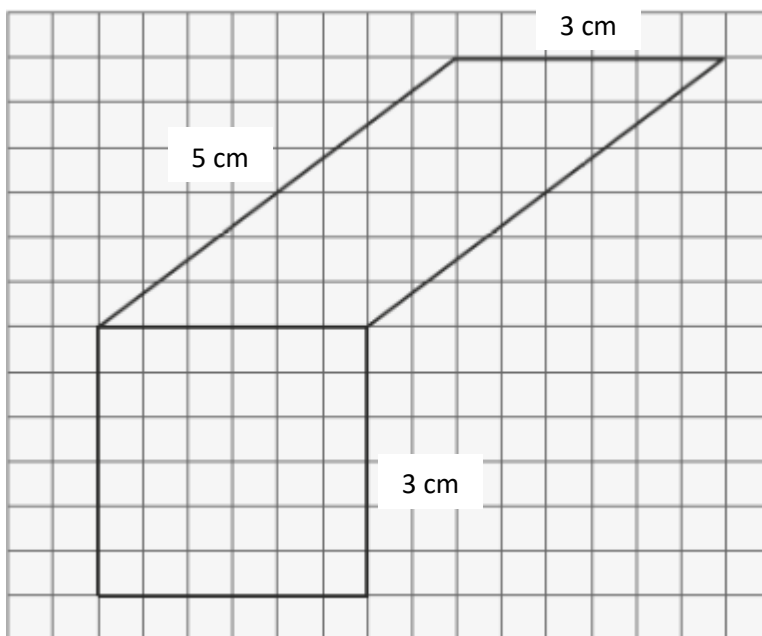
$$P = 3 + 3 + 3 + 2 + 6 + 2 + 3 \\ = 22 \text{ cm}$$

b)



$$P = (2 \times 3) + (2 \times 5) \\ = 6 + 10 \\ = 16 \text{ cm}$$

c)

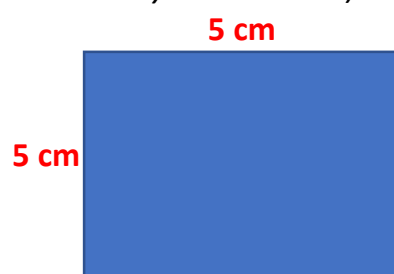
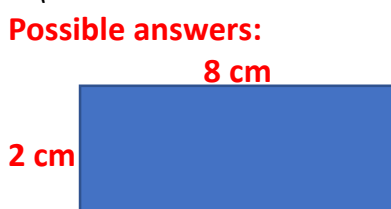


$$P = 3 + 5 + 3 + 3 + 3 + 5 \\ = 22 \text{ cm}$$

2. Draw three different rectangles, each with a perimeter of 20 cm. Label each of the sides.

(You do not need to draw them accurately with a ruler.)

Possible answers:

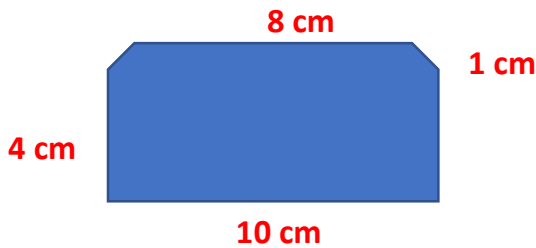


Any other answers where the perimeter is 20 cm.

3. Draw three different shapes which are not rectangles, each with a perimeter of 28 cm.

Any answers where the perimeter is 28 cm and is not a rectangle.

e.g.



YELLOW QUESTIONS

1. The perimeter of this rectangle is 50 cm. What is its length?



$$\begin{aligned} 50 \text{ cm} &= (2 \times \text{length}) + (2 \times \text{width}) \\ &= (2 \times \text{length}) + (2 \times 8) \\ &= (2 \times \text{length}) + 16 \end{aligned}$$

$$\begin{aligned} (2 \times \text{length}) &= 50 - 16 = 34 \\ \text{Length} &= 34 \div 2 = 17 \text{ cm} \end{aligned}$$

2. Robert has a piece of wire that is 128 cm long.

He bends it so that it makes a square.

How long is one side of her square? Explain how you know.

A square has 4 equal sides so the perimeter must equal the length of the wire.

$$\text{Length of one side} = 128 \div 4 = 32 \text{ cm.}$$

3. A sports field is a rectangular shape.

It has a perimeter of 180 metres.

What might the dimensions be? Find four possible answers.

A rectangle has two long sides and two short sides.

$$\text{Perimeter} = 180 \text{ cm} = (2 \times \text{length}) + (2 \times \text{width})$$

Looking for rectangles where length + width = 90 cm

$$1. \text{ If length} = 50 \text{ cm, then width} = 180 - (2 \times 50) = 180 - 100 = 80 \text{ m}$$

$$\text{So } 2 \times \text{width} = 80 \text{ m so width} = 40 \text{ m}$$

Sports field is 50 m long and 40 m wide.

$$\text{Check: } 50 + 40 + 50 + 40 = 180 \text{ m}$$

$$2. \text{ If length} = 60 \text{ cm, then width} = 180 - (2 \times 60) = 180 - 120 = 60 \text{ m}$$

$$\text{So } 2 \times \text{width} = 60 \text{ m so width} = 30 \text{ m}$$

Sports field is 60 m long and 30 m wide.

$$\text{Check: } 60 + 30 + 60 + 30 = 180 \text{ m}$$

$$3. \text{ If length} = 45 \text{ cm, then width} = 180 - (2 \times 45) = 180 - 90 = 90 \text{ m}$$

$$\text{So } 2 \times \text{width} = 90 \text{ m so width} = 45 \text{ m}$$

Sports field is 45 m long and 45 m wide.

Check: $4 \times 45 = 180 \text{ m}$

4. If length = 55 cm, then width = $180 - (2 \times 55) = 180 - 110 = 70 \text{ m}$

So $2 \times \text{width} = 55 \text{ m}$ so width = 35 m

Sports field is 55 m long and 35 m wide.

Check: $55 + 35 + 55 + 35 = 180 \text{ m}$

Any answer where the length + width = 90 m is acceptable.

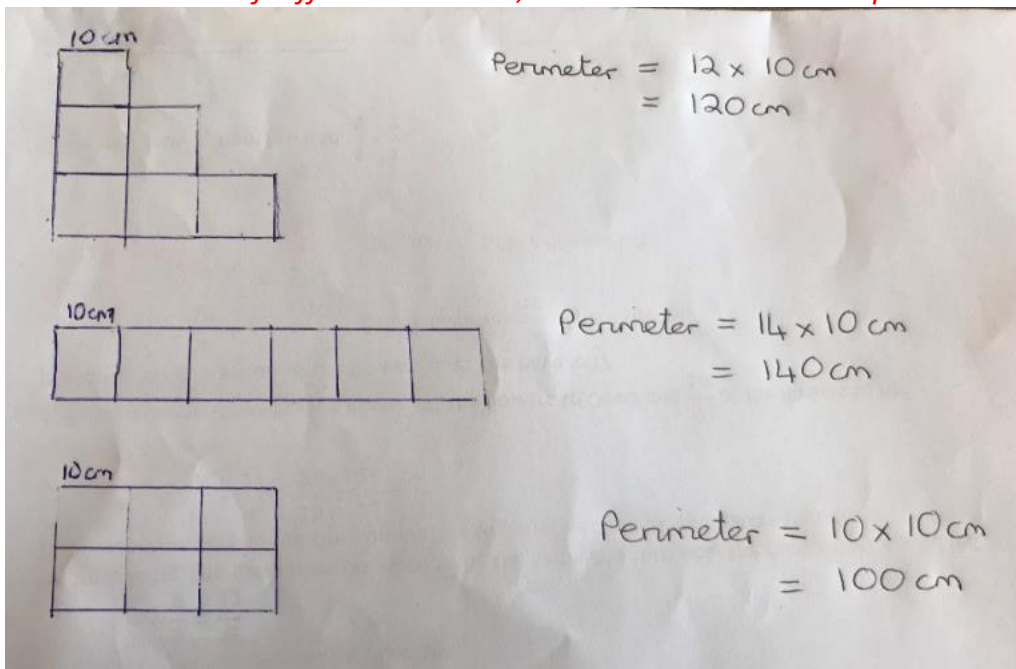
4. Zak has 6 square tiles. Each tile has a perimeter of 40 cm.

Zak puts his tiles together to make a shape.

Sketch three different shapes Zak could make and then work out their perimeters.

Each square tile has a perimeter of 40 cm, so each side equals $40 \div 4 = 10 \text{ cm}$

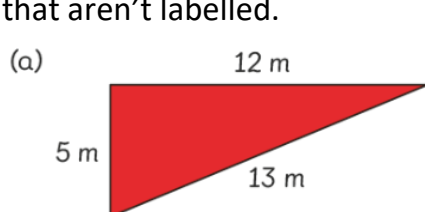
There are lots of different answers, but here are three examples.



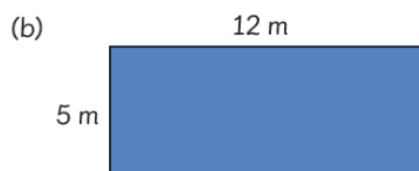
THURSDAY 25th JUNE

RED QUESTION

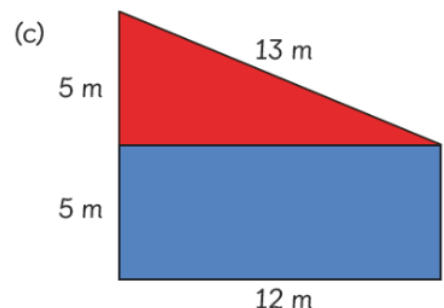
Find the perimeter of each figure. Don't forget the missing sides that aren't labelled.



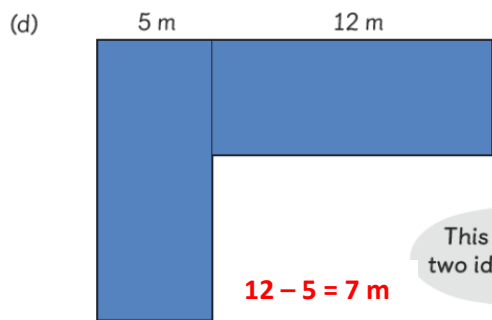
$$\begin{aligned} \text{a) } P &= 12 + 13 + 5 \\ &= 30 \text{ m} \end{aligned}$$



$$\begin{aligned} \text{b) } P &= (2 \times 12) + (2 \times 5) \\ &= 24 + 10 \\ &= 34 \text{ m} \end{aligned}$$

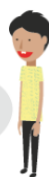


$$\begin{aligned} \text{c) } P &= 13 + 5 + 12 + 5 + 5 \\ &= 40 \text{ m} \end{aligned}$$



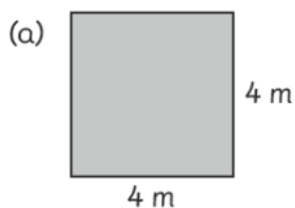
$$P = 5 + 12 + 5 + 12 + 7 + 5 + 12 = 58 \text{ m}$$

This figure consists of two identical rectangles.

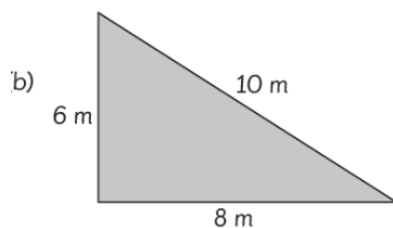


BLUE QUESTIONS

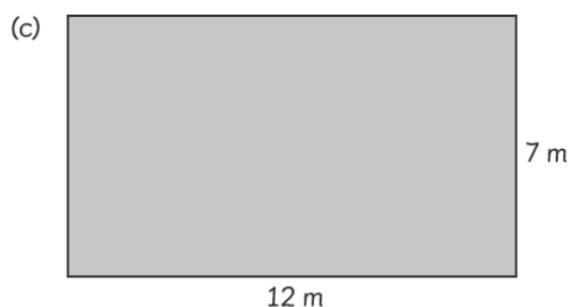
1. Find the perimeter of each figure.



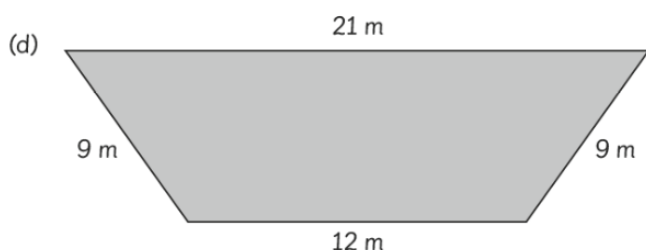
$$\text{a) } P = 4 \times 4 = 16 \text{ m}$$



$$\text{b) } P = 10 + 8 + 6 = 24 \text{ m}$$

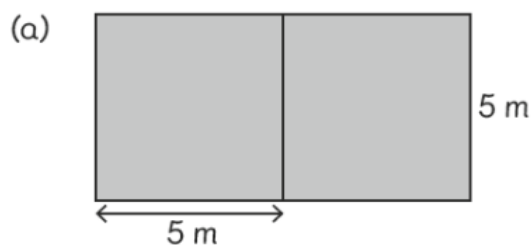


$$\text{c) } P = (2 \times 12) + (2 \times 7) = 24 + 14 = 38 \text{ m}$$

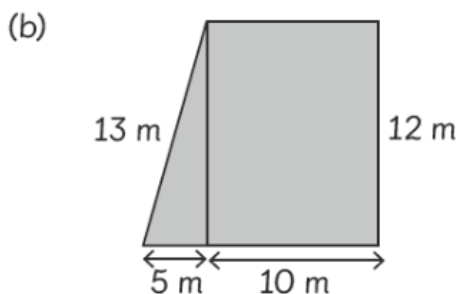


$$P = 21 + 9 + 12 + 9 = 51 \text{ m}$$

2. Find the perimeter of each figure. The squares in (a) are identical.

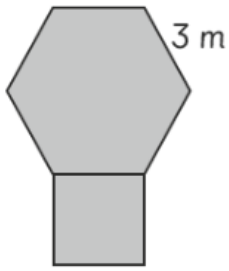


$$\text{a) } P = 6 \times 5 \text{ m} = 30 \text{ m}$$



$$\text{b) } P = 10 + 12 + 10 + 5 + 13 = 50 \text{ m}$$

3. This figure is made up of a regular hexagon and a square. Find the perimeter of the figure.

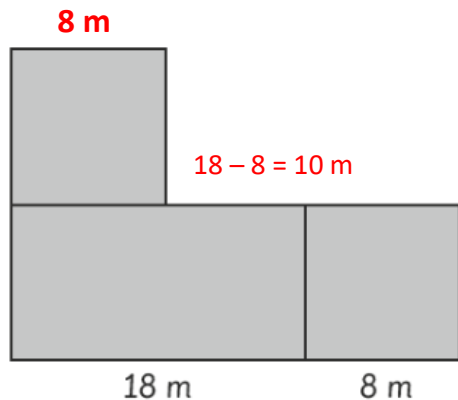


A regular hexagon has equal sides so each side will be 3 m.

As the side of the square is equal to the side of the hexagon, its sides are also 3m in length.

$$P = 8 \times 3 = 24 \text{ m}$$

4. The two squares in the diagram are identical. What is the perimeter of the figure?

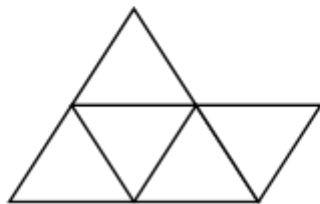


$$\begin{aligned} P &= 8 + 8 + 10 + 8 + 8 + 8 + 18 + 8 + 8 \\ &= (7 \times 8) + 28 \\ &= 56 + 28 = 84 \text{ m} \end{aligned}$$

5. An equilateral triangle has a perimeter of 21 cm.



John uses the 5 of theses triangles to make this shape.



What is the perimeter of the new shape he has made?

An equilateral triangle has three equal sides so each side will be perimeter = $21 \text{ cm} \div 3 = 7 \text{ cm}$.

Perimeter of John's shape is $7 \times 7 \text{ cm} = 49 \text{ cm}$ because there are seven sides forming the perimeter.

YELLOW QUESTIONS

1.



The square and the regular hexagon have the **same** perimeter.

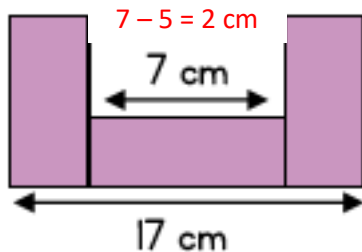
Work out the length of one side of the square.

The perimeter of the hexagon is $6 \times 8 \text{ cm} = 48 \text{ cm}$.

A square has four equal sides and because the shapes have the same perimeter, the length of each side is $48 \div 4 = 12 \text{ cm}$.

Check: Perimeter of square = $4 \times 12 = 48 \text{ cm}$, the same as the hexagon.

2. This shape is made up of three identical rectangles. Work out the perimeter of the shape.



Need to calculate the width of the rectangle.

I know that 2 widths + length = 17 cm.

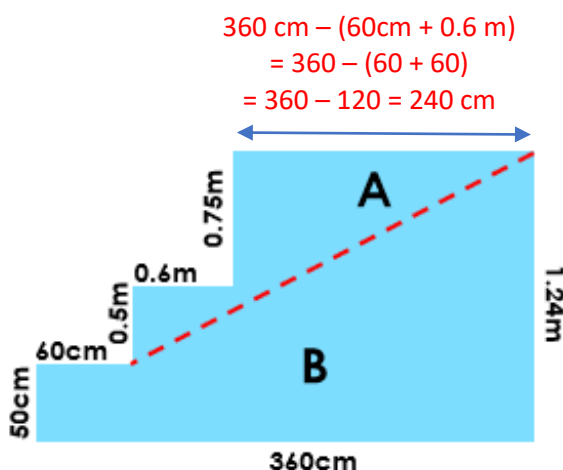
Length = 7 cm, so 2 widths = $17 - 7 = 10$

If two widths = 10 cm, then 1 width = 5 cm.

Therefore the width of the rectangle = 5 cm.

$$\begin{aligned} P &= 17 + 7 + 5 + 2 + 7 + 2 + 5 + 7 \\ &= 52 \text{ cm} \end{aligned}$$

3. Phillipa cuts along the **1.85m dotted line**. She thinks the new perimeters are: A = 6.1m and B = 7.79m.



$$\begin{aligned} 360 \text{ cm} - (60 \text{ cm} + 0.6 \text{ m}) \\ &= 360 - (60 + 60) \\ &= 360 - 120 = 240 \text{ cm} \end{aligned}$$

The length of the diagonal is 1.85 m.

For A:

$$\begin{aligned} P &= 240 \text{ cm} + 1.85 \text{ m} + 0.5 \text{ m} + 0.6 \text{ m} + 0.75 \text{ m} \\ &= 2.4 + 1.85 + 0.5 + 0.6 + 0.75 \text{ metres} \\ &= 6.1 \text{ m} \end{aligned}$$

For B:

$$\begin{aligned} P &= 1.24 \text{ m} + 360 \text{ cm} + 50 \text{ cm} + 60 \text{ cm} + 1.85 \text{ m} \\ &= 1.24 + 3.6 + 0.5 + 0.6 + 1.85 \text{ metres} \\ &= 7.79 \text{ m} \end{aligned}$$

Phillippa is correct.

Is Phillipa correct? Prove it.

4.

Here is a square inside another square.



The perimeter of the inner square is 16 cm

The outer square's perimeter is four times the size of the inner square.

What is the length of one side of the outer square?

How do you know? What do you notice?

If the perimeter of the inner square is 16 cm, then the outer square has a perimeter that is four times bigger. The outer square has a perimeter of $4 \times 16 = 64$ cm.

A square has four equal sides then one side is a quarter of the perimeter.

$64 \div 4 = 16$ cm which is the length of one side of the outer square.

I noticed that when looking at squares, if the perimeter is four times bigger then so was the length of one side.

FRIDAY 26th JUNE – Complete the Friday quiz on perimeter.

It will be on the website on Thursday and answers will be sent automatically to Mrs Wren.