Area & Perimeter

08/01/2021

WALT: To calculate the area of compound shapes by using the correct formula

Bronze: I can use a formula to calculate the area of simple compound shapes

Silver: I can use a formula to calculate the area of compound shapes with higher measurements

Gold: I can use formula to calculate the area of complex compound shapes with missing measurements

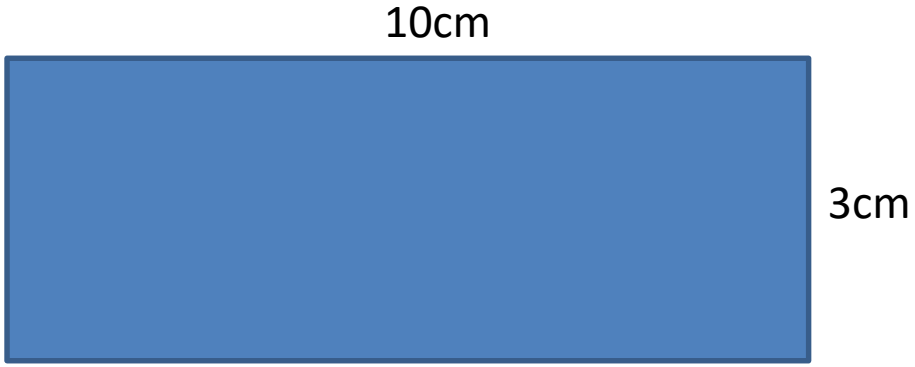
Perimeter

- **Perimeter:** The distance around the outside of a shape

- To calculate the perimeter, you add together **all** the sides of a shape

Perimeter

- Example:

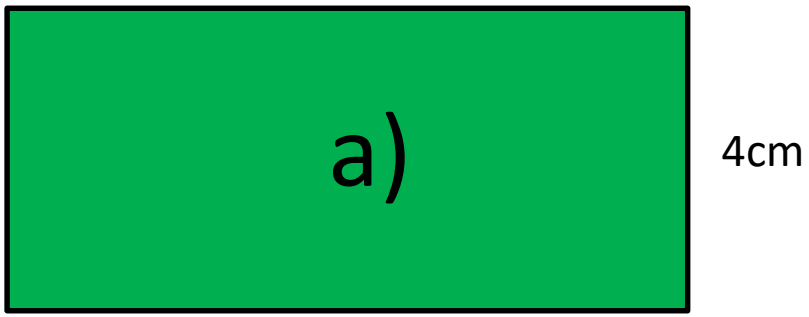


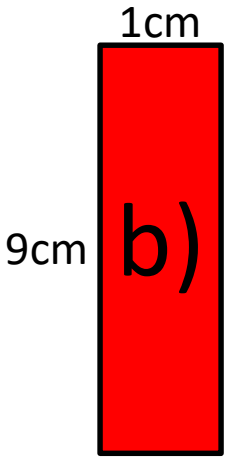
P = 10 + 3 + 10 + 3

P = 26cm

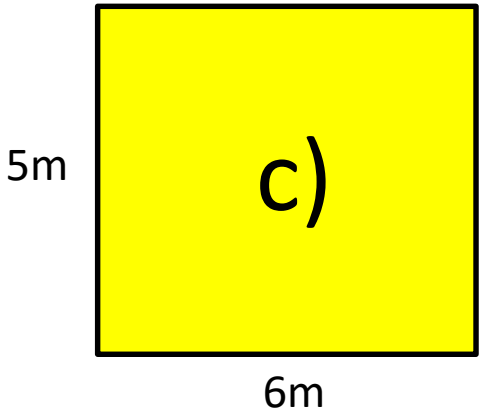
Perimeter

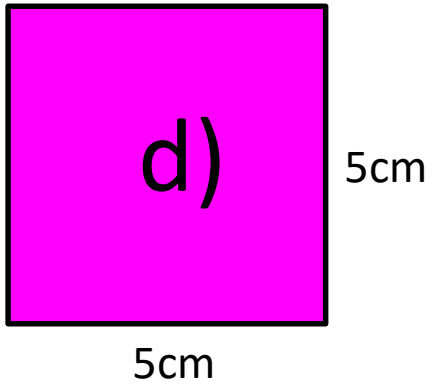
- Calculate the perimeter of the following rectangles:



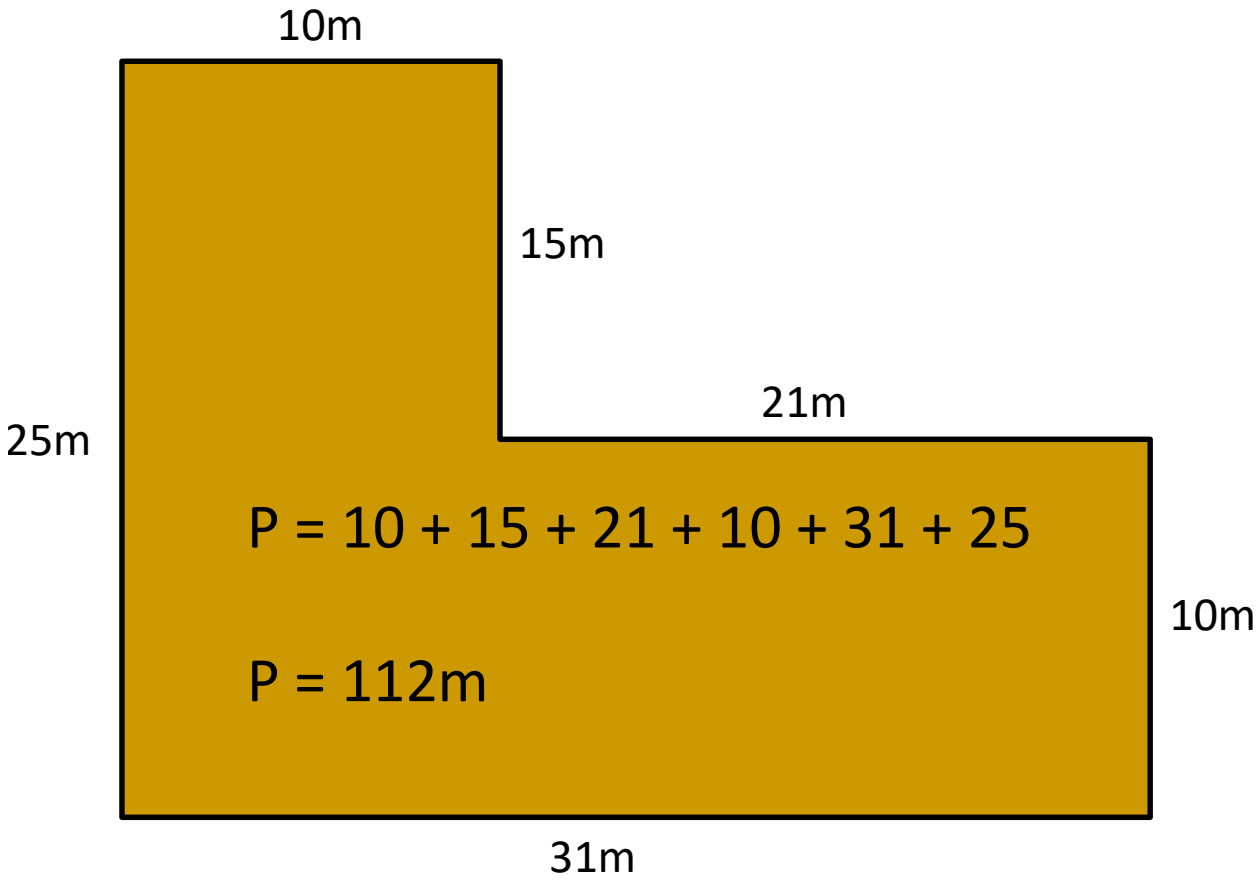


EXTENSION: Can you calculate the area of these rectangles?





Compound Perimeter



$P = 10 + 15 + 21 + 10 + 31 + 25$

$P = 112m$

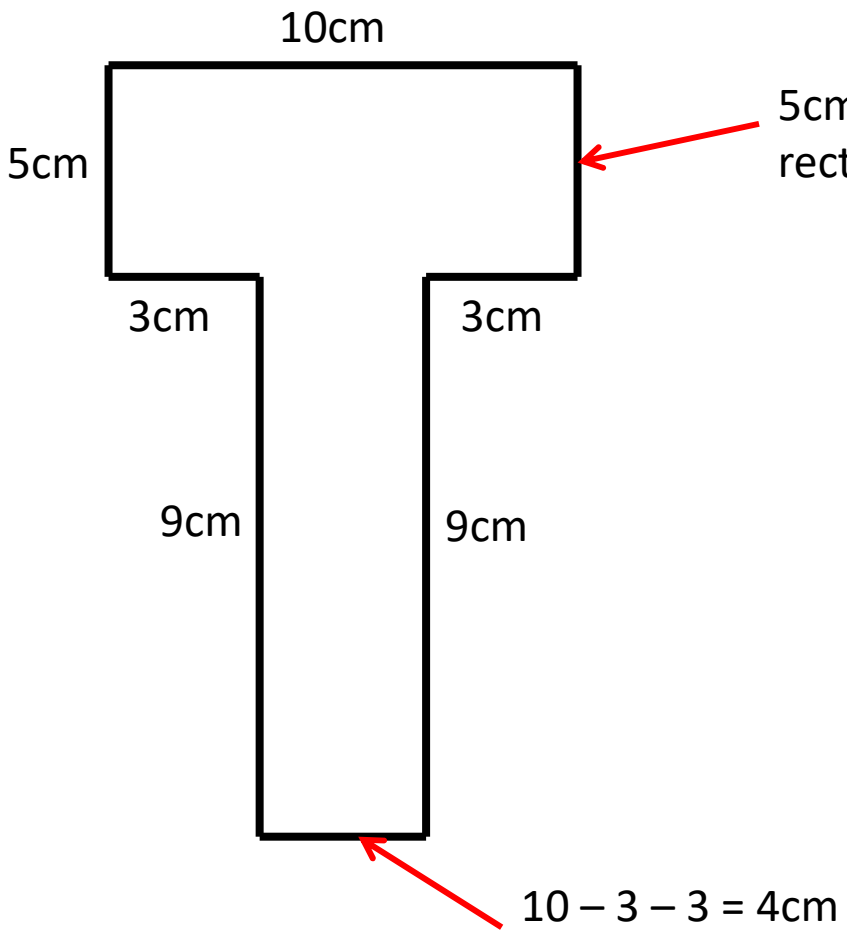
Can I calculate the perimeter of this shape?

I need to find the length of the missing sides first.

Now I can calculate the perimeter by adding up the <u>all</u> the sides.

Perimeter

- Example:

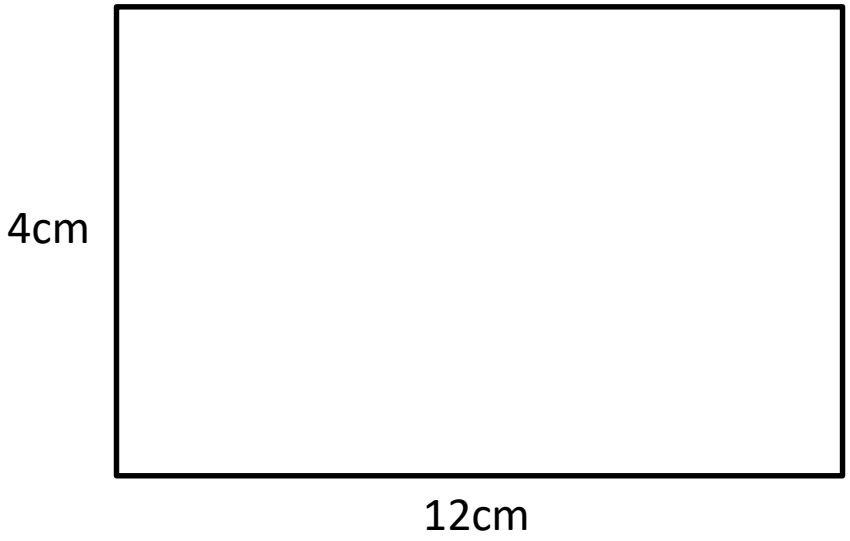


Perimeter = 5 + 10 + 5 + 3 + 9 + 4 + 9 + 3

Perimeter = 48cm

Area of a rectangle

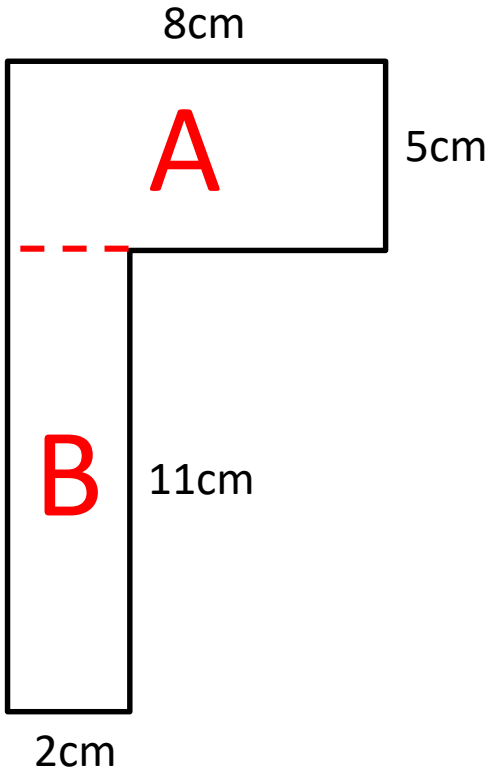
- Area of a rectangle = length x width



Area = 4 x 12

Area = 48cm^2

Compound Shapes



Area A = 8 x 5

= 40cm^2

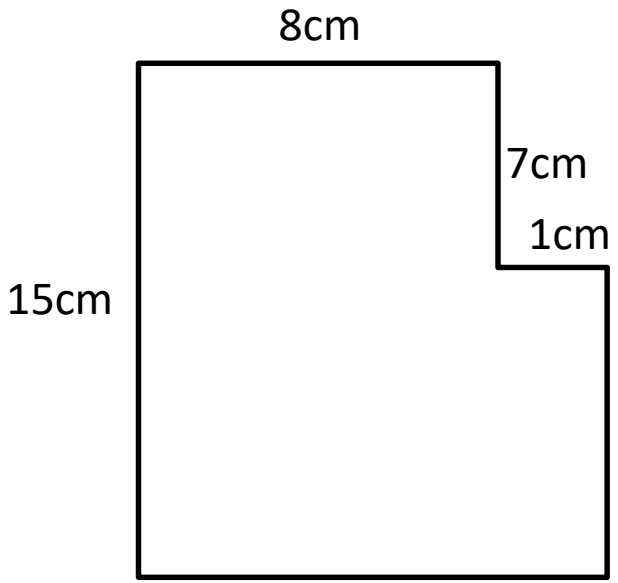
Area B = 11 x 2

= 22cm^2

Total Area = 40 + 22

= 62cm^2

Compound Shapes



Area & Perimeter

08/01/2021

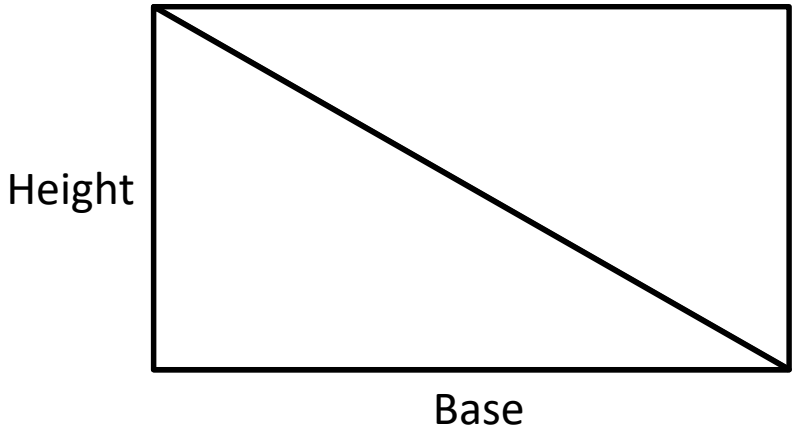
WALT: To calculate the area of parallelograms and triangles

Bronze: I can use the correct formula to find the area of a triangle

Silver: I can use the correct formula to find the area of a triangle and the area of a parallelogram

Gold: I can use the correct formula to find the area of simple compound shapes made from triangles and parallelograms

Area of Triangles

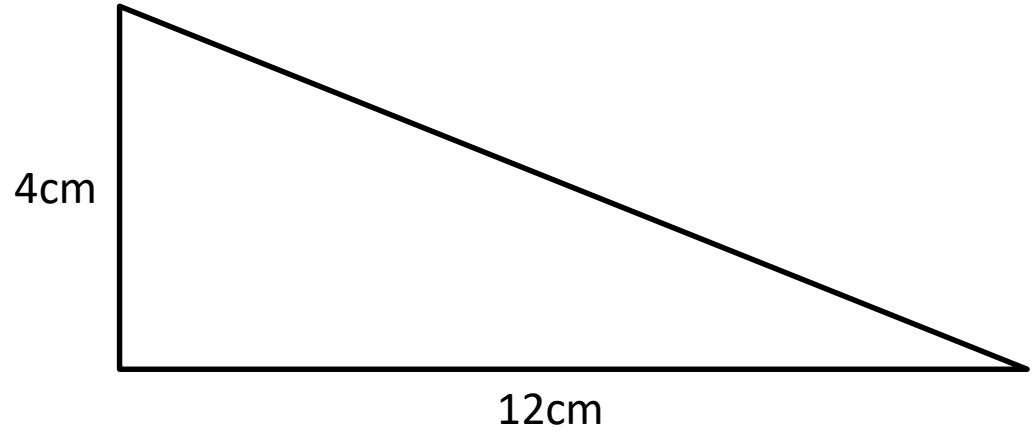


- **Area of a triangle = ½ x base x height**

  = ½bh

Area of a Triangle

- Calculate the area of this triangle.

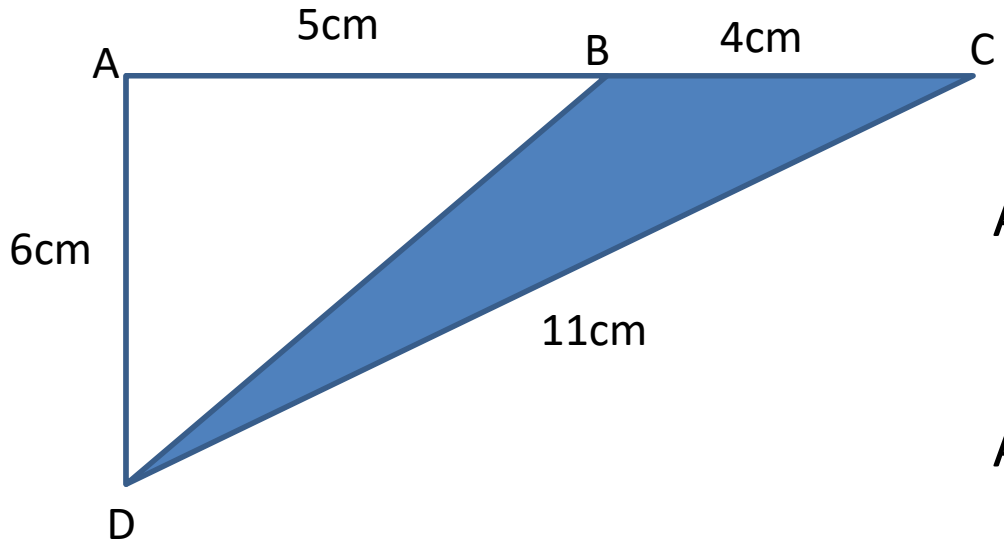


Area = ½ x 4 x 12

= 24cm^2

Area of Triangles

- Find the area of the shaded triangle BCD.



Area of ACD = ½ x 9 x 6
= 27cm^2

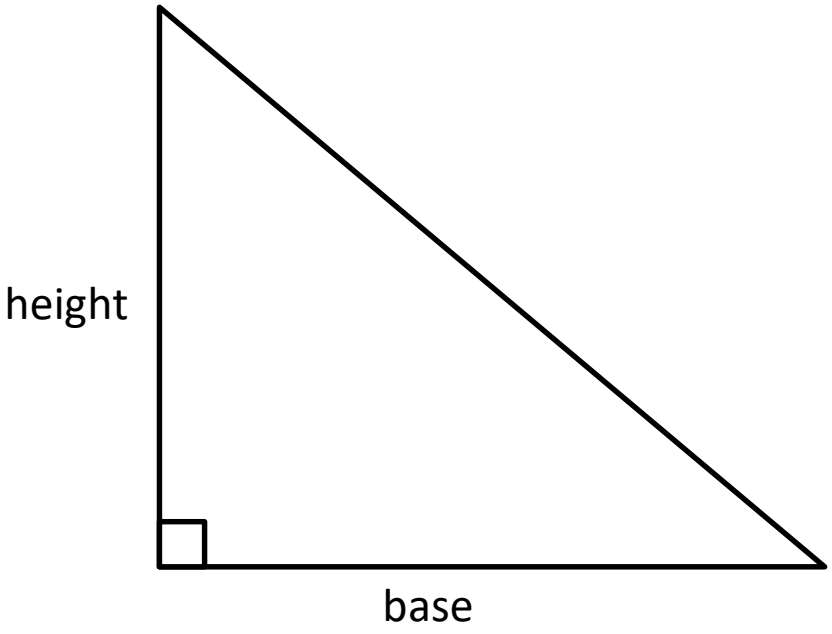
Area of ABD = ½ x 5 x 6
= 15cm^2

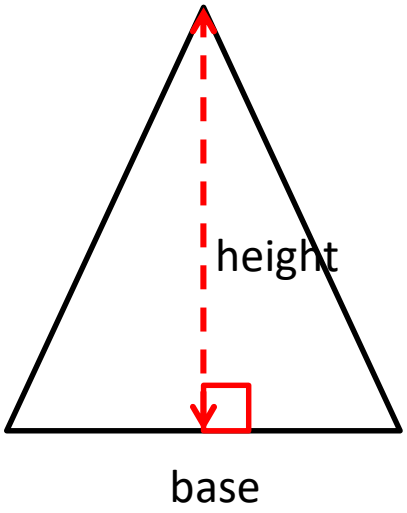
Area of BCD = 27 – 15
= 12cm^2

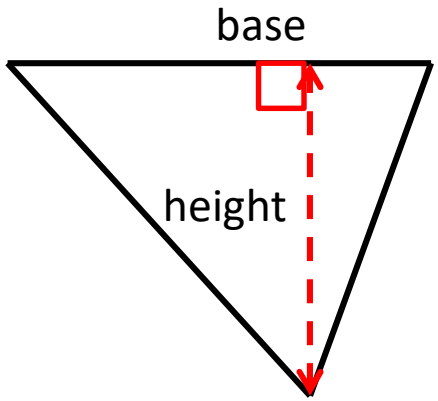
Area of Triangles

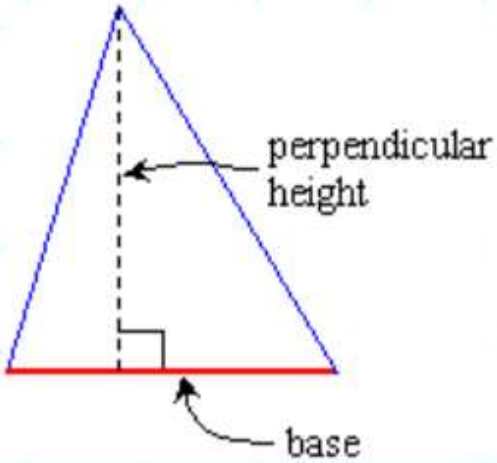
The **perpendicular** height

- Area = $\frac{\text{base x height}}{2}$



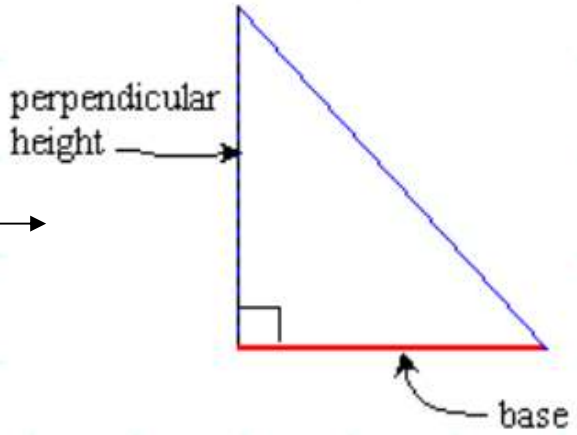


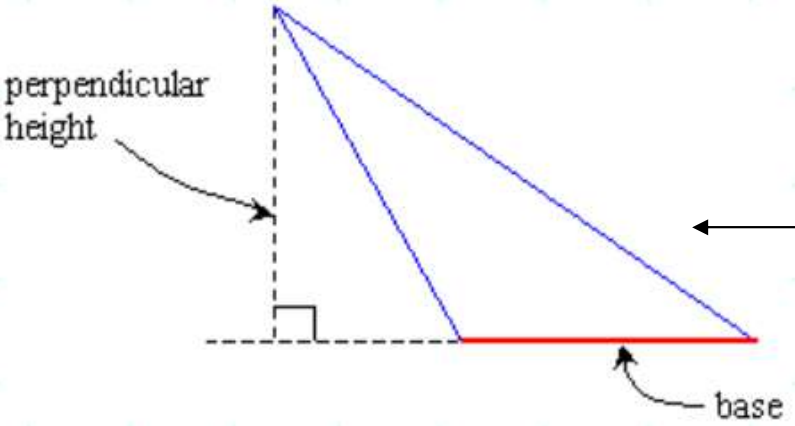




Any side can be the base, and then the perpendicular height extends from the vertex opposite the base to meet the base at a 90° angle.

For a right angled triangle, the perpendicular height can be one of the sides.

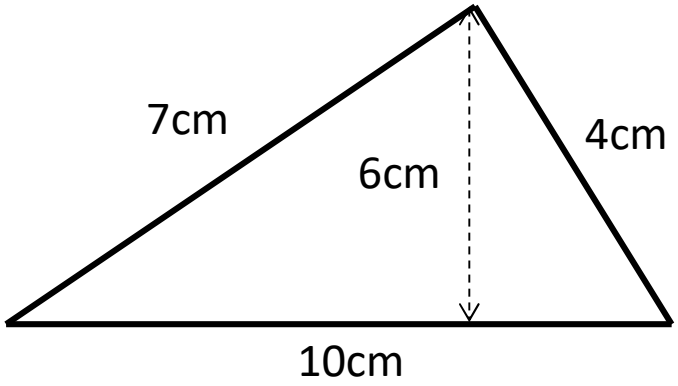




For an obtuse angled triangle (a triangle with an angle greater than 90°) the perpendicular height may lie outside of the triangle itself.

Area of Triangles

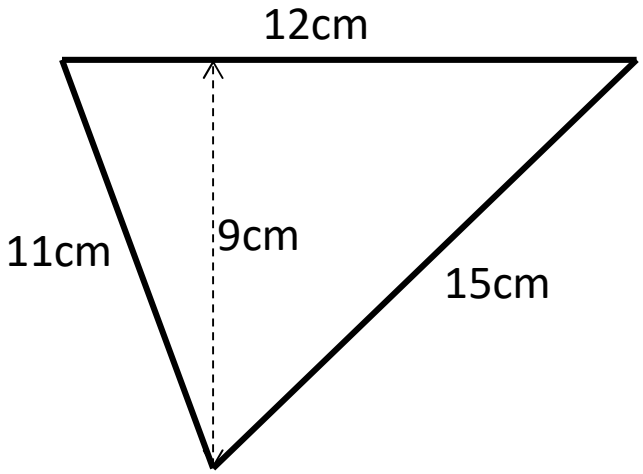
- Find the area of the following triangle.

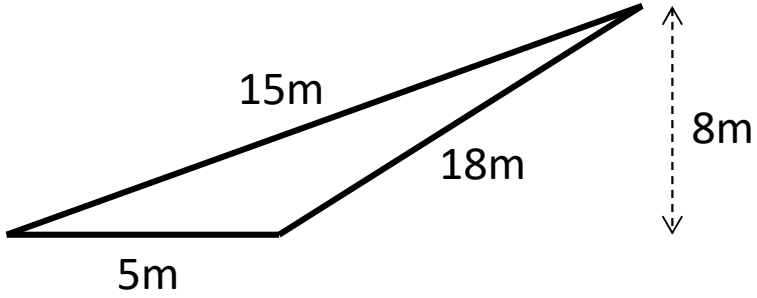


Area = ½ x 10 x 6

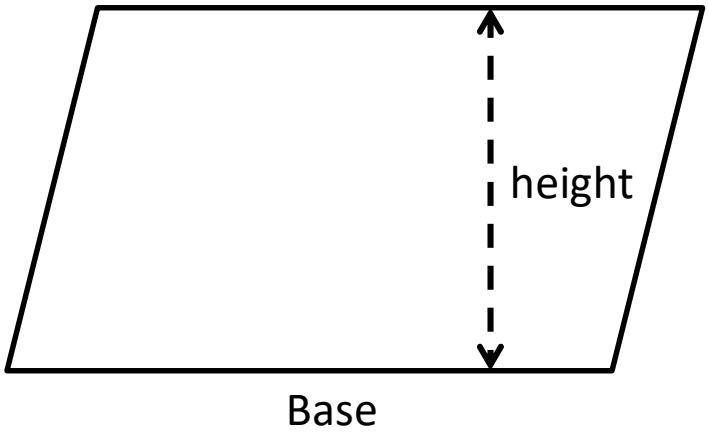
= 30cm^2

Area of Triangles

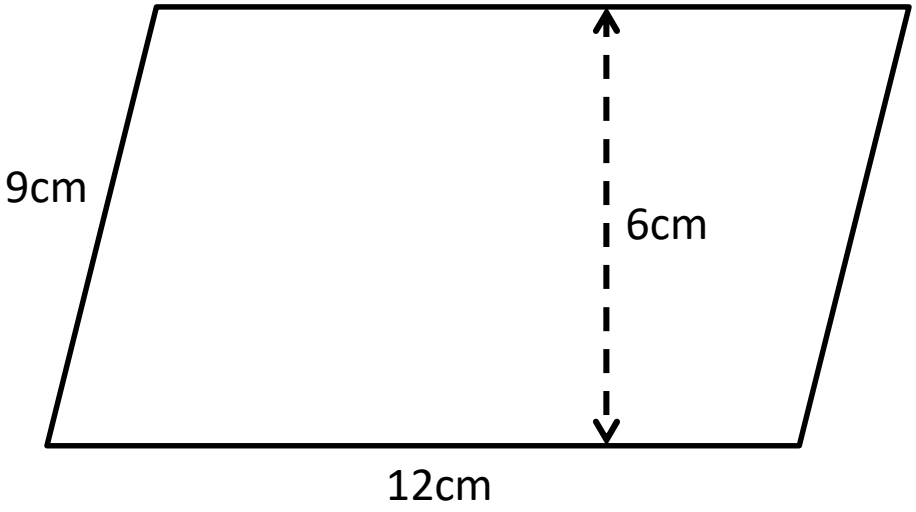




Area of a Parallelogram



Area of Parallelogram = base x perpendicular height

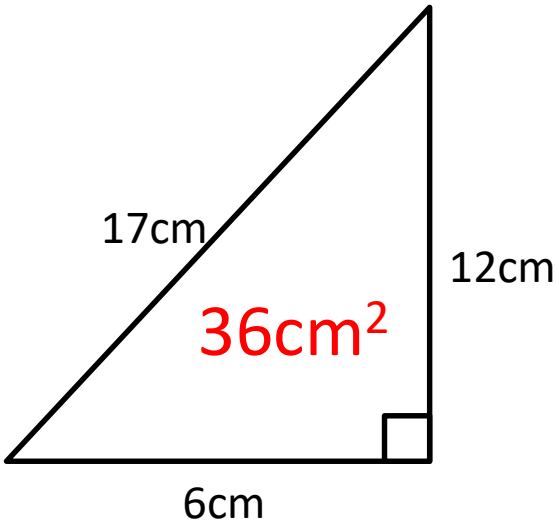


Area = 6 x 12

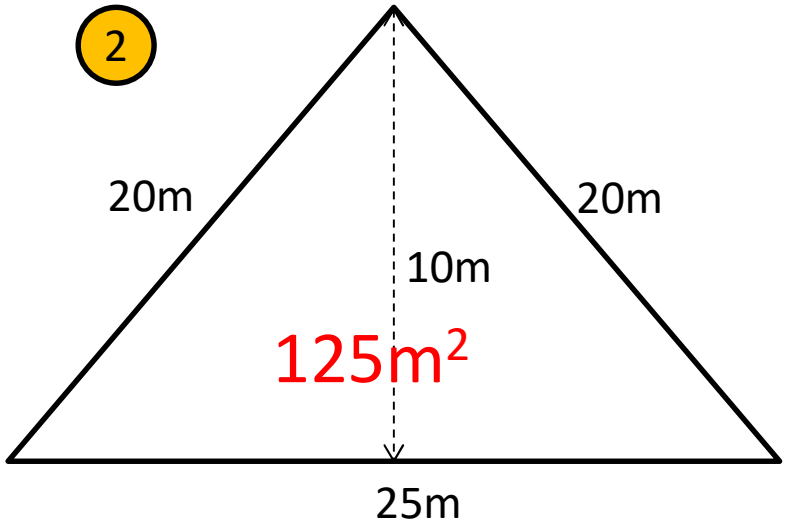
= 72cm^2

Area of Triangles

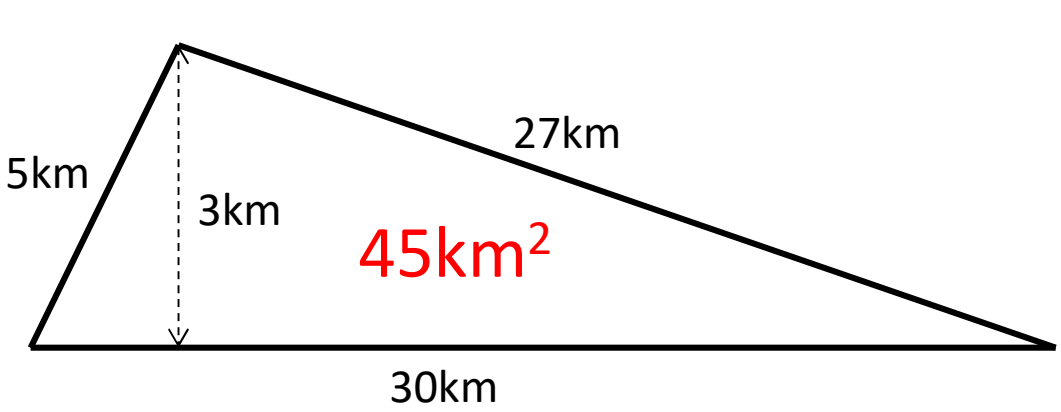
1



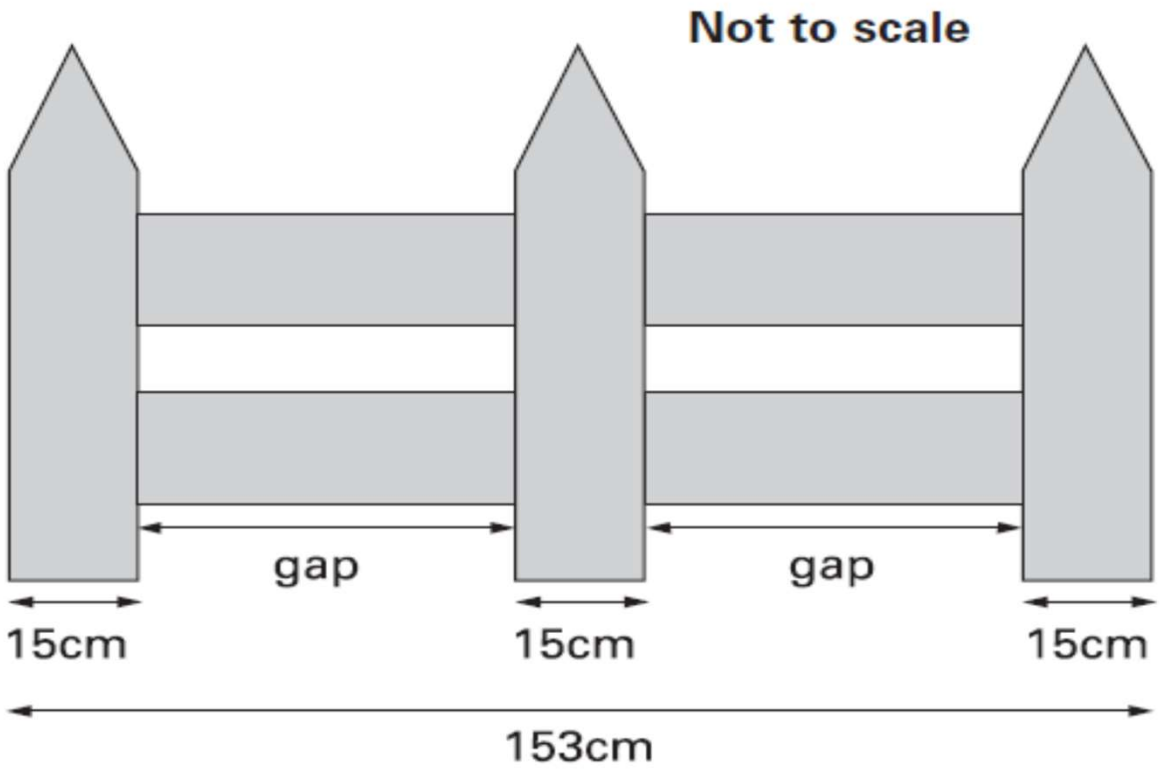
2



3



This fence has three posts, equally spaced.

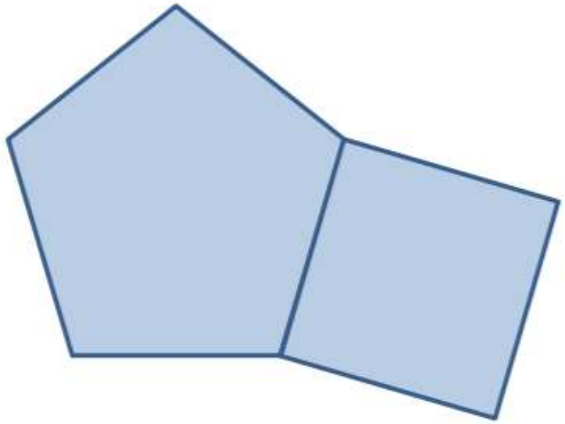


Each post is **15 centimetres** wide.

The length of the fence is **153 centimetres**.

Calculate the length of **one gap** between two posts.

1 This shape is made of a regular pentagon and a square.



The area of the square is $81cm^2$.

Find the perimeter of the shape.

2 This diagram is made up of two different sized rectangles.

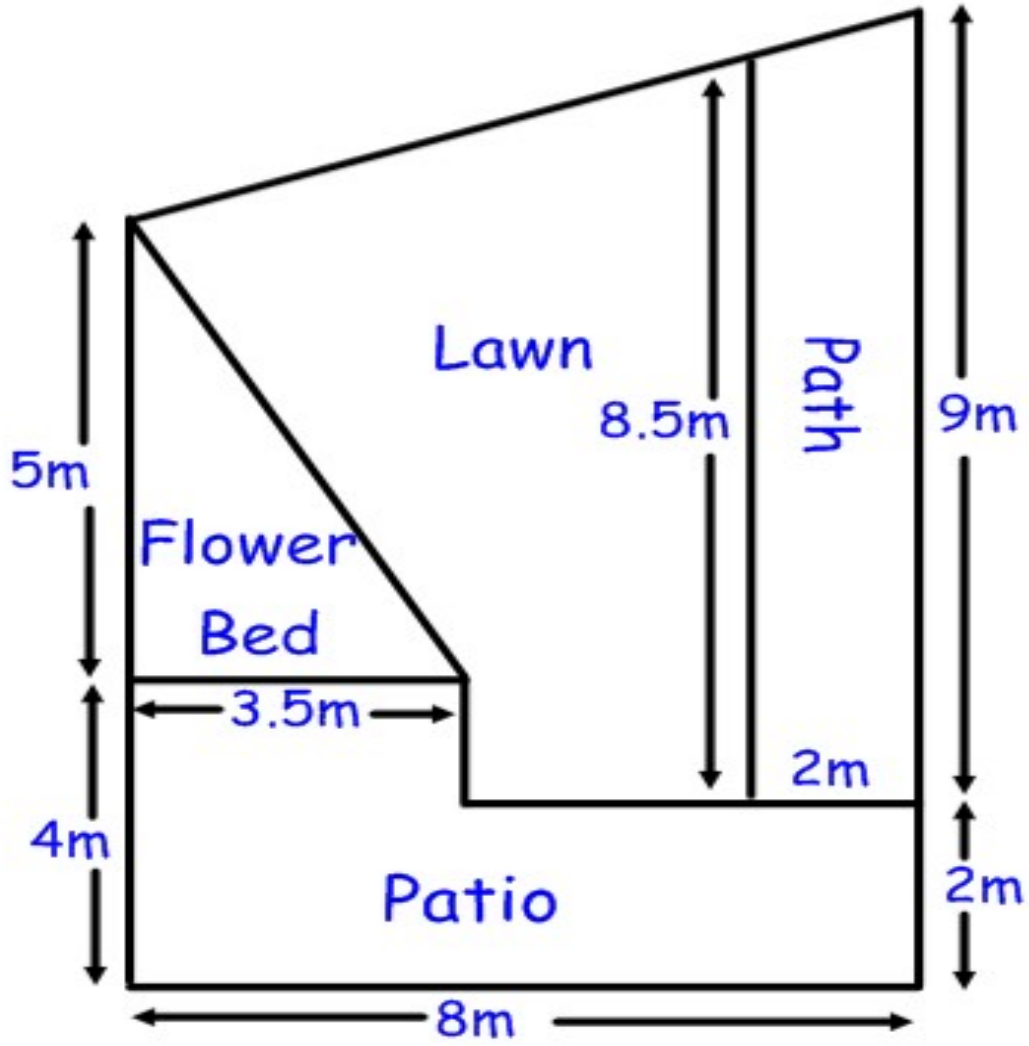
For each large rectangle the length is double the width.

The length of the diagram is 60m.

Find the area of one of the small rectangles.

No. 54 Garden

Not to scale



Area of Compound Shapes

Grade D

08/01/2021

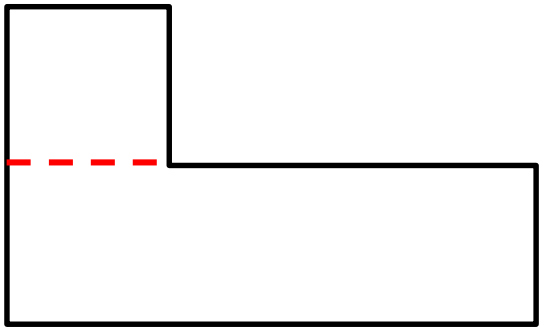
Learning Objectives:

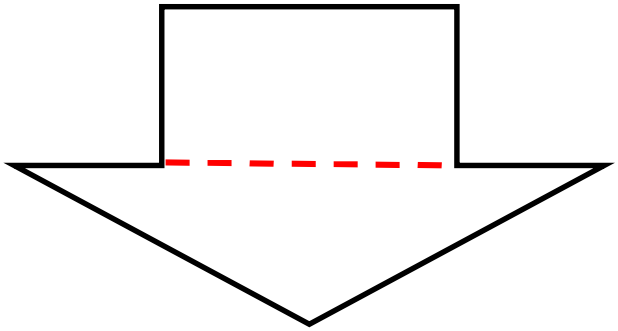
- Able to calculate areas of trapezia
- Able to split up a compound shape
- Able to find the area of a compound shape

Compound Shapes

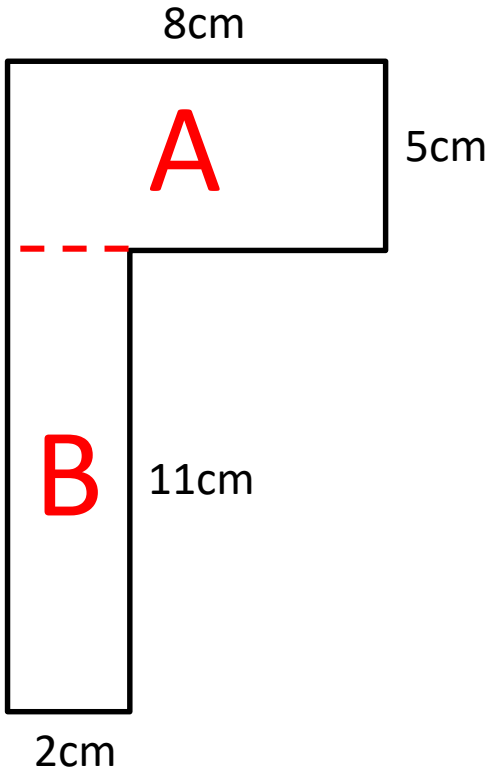
- To find the area of compound shapes, split them up into their composite shapes.

- Find the area of each shape, then add them together





Compound Shapes



Area A = 8 x 5

= 40cm^2

Area B = 11 x 2

= 22cm^2

Total Area = 40 + 22

= 62cm^2

Compound Shapes