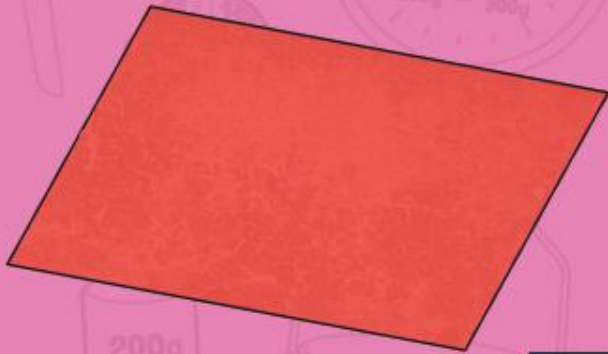




Maths

Measurement

Area of Parallelograms



Aim

I can find the area of a parallelogram.

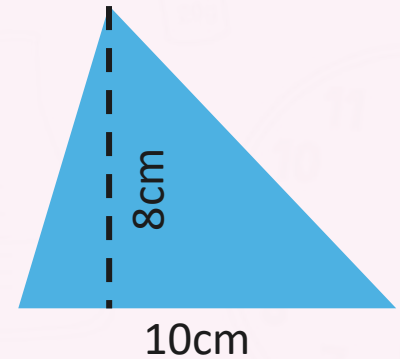
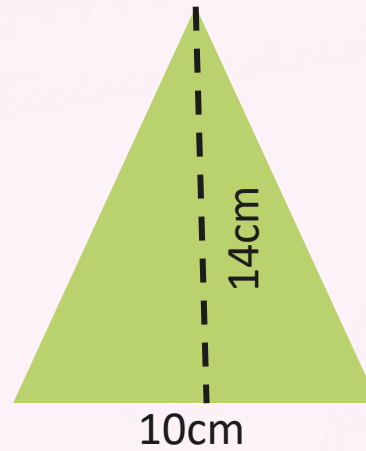
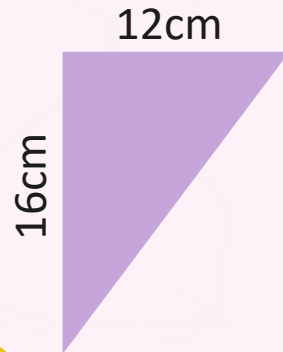
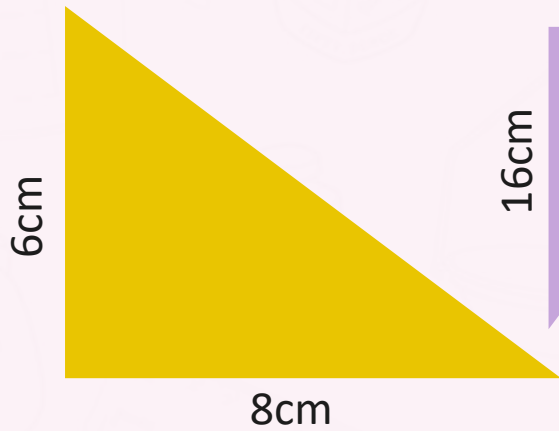
Success Criteria

- I can find the area of a parallelogram by multiplying the length by the height.
- I can explain why the formula works for a parallelogram.
- I can solve problems involving calculating the area of parallelograms.

Match the Area



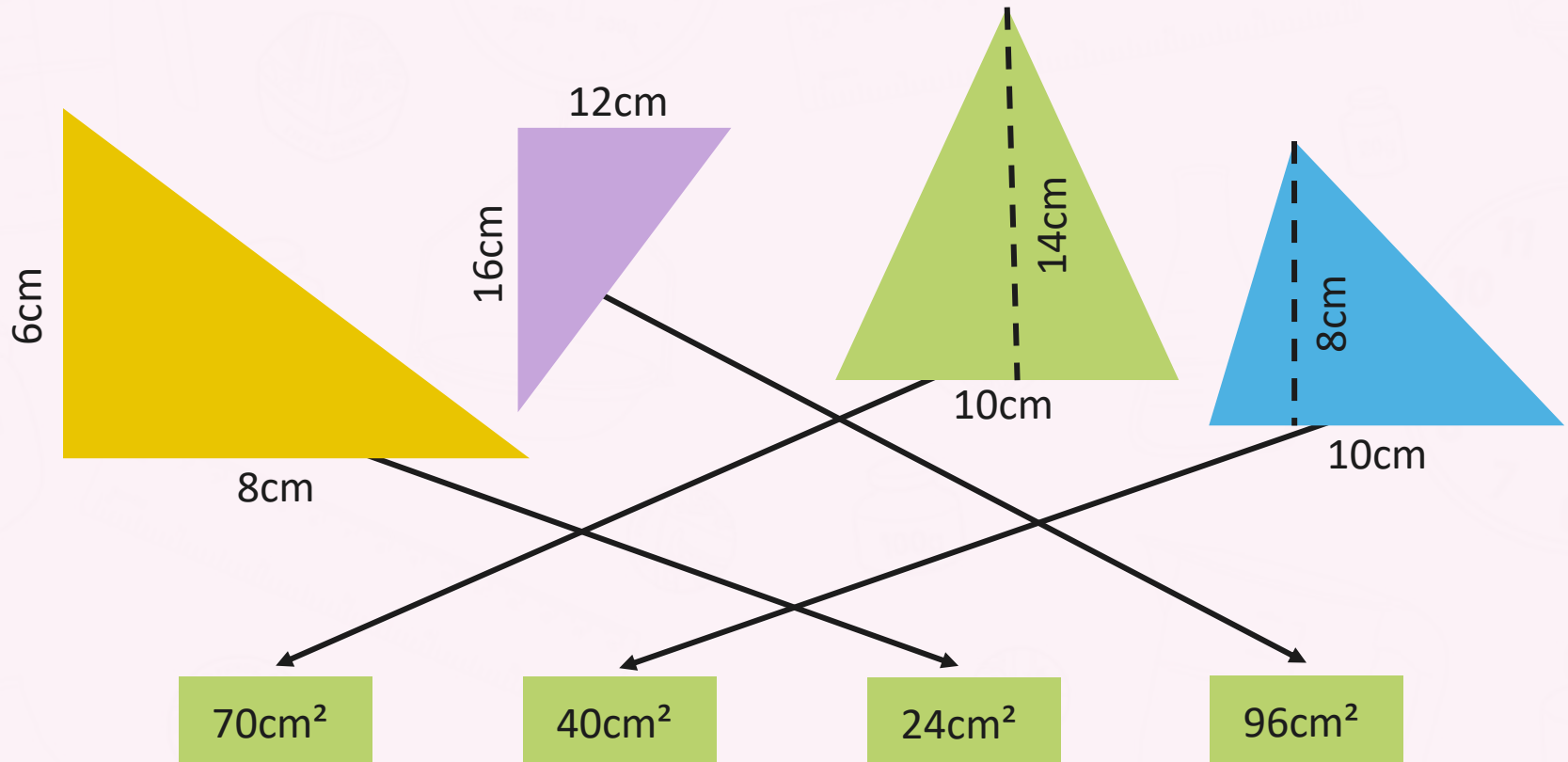
Match these triangles to their areas:



Match the Area



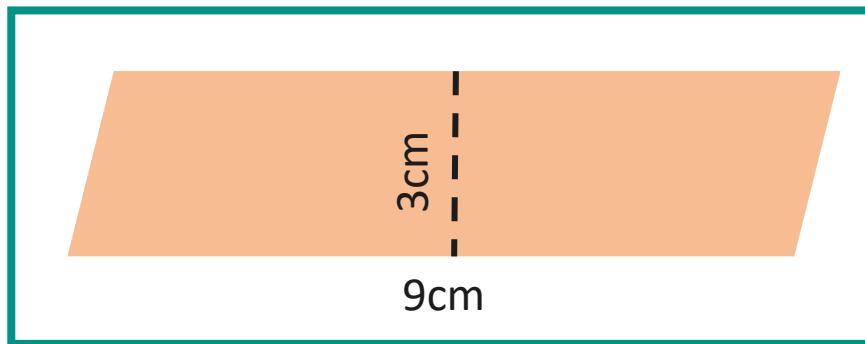
Match these triangles to their areas:



How to Calculate the Area of a Parallelogram

To calculate the area of a parallelogram, you need to multiply the length of the parallelogram by the height (not the sides).

Here is a parallelogram:

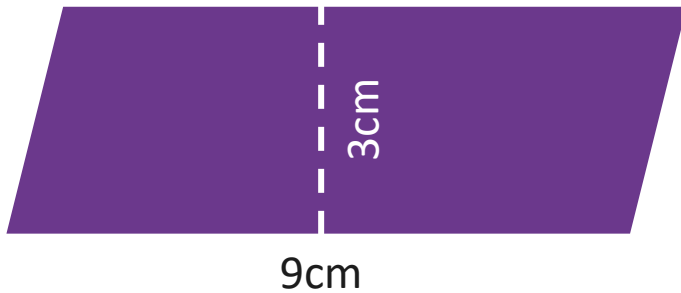


$$9\text{cm} \times 3\text{cm} = 27\text{cm}^2$$

The area of this parallelogram is **27cm²**.

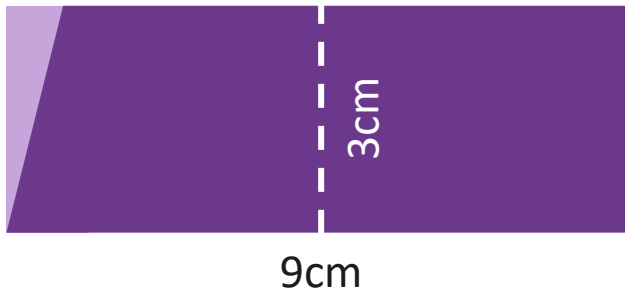
How to Calculate the Area of a Parallelogram

But why does this formula work when calculating the area of a parallelogram?



How to Calculate the Area of a Parallelogram

But why does this formula work when calculating the area of a parallelogram?



To calculate the area of a parallelogram, you need to multiply the length of the parallelogram by the height.

If we were to cut off a right angled-triangle from the end of the parallelogram...

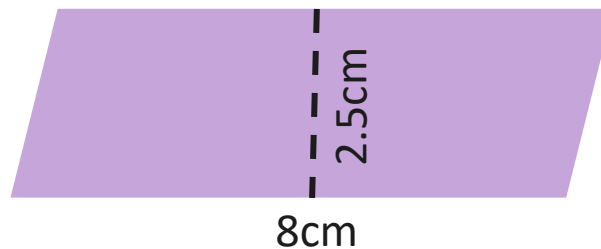
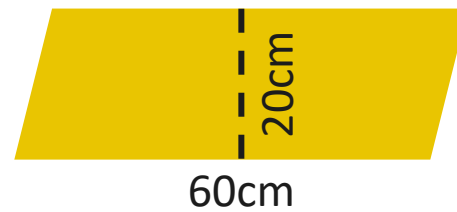
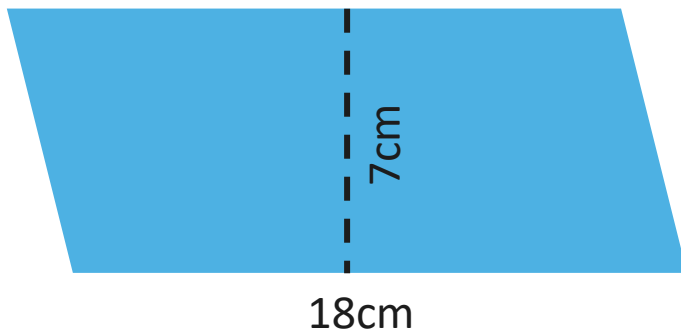
and add it to the other end of the shape...

we would have a rectangle with the dimensions $3\text{cm} \times 9\text{cm}$, so the area would be **27cm^2** .

Find the Area of a Parallelogram



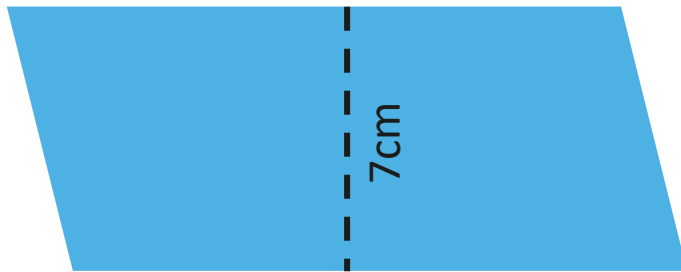
Find the area of these parallelograms:



Find the Area of a Parallelogram



Find the area of these parallelograms:



126cm^2

18cm



60cm

1200cm^2



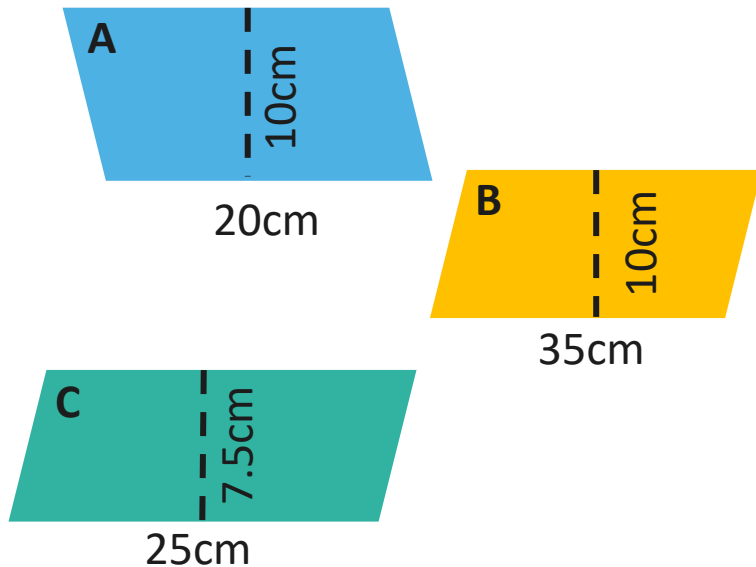
8cm

20cm^2



Parallelogram Problem

Here are three parallelograms (not drawn to scale). Read each clue and work out which of the parallelograms is being described.

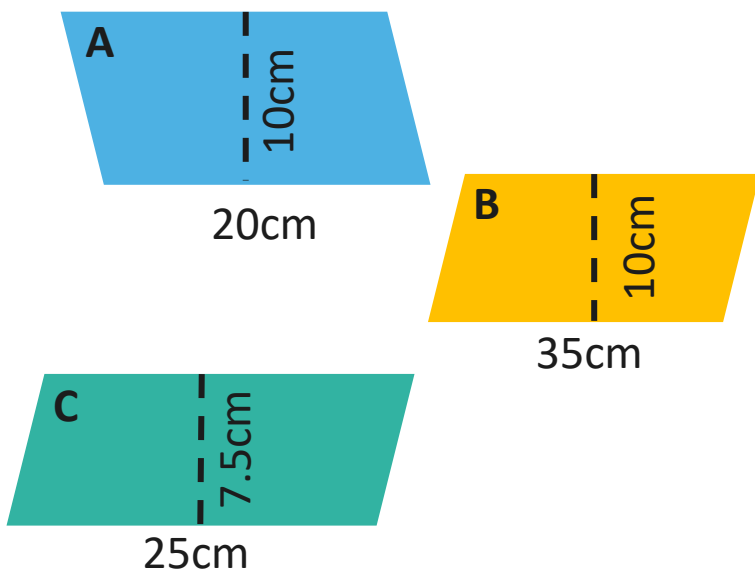


Clue	Parallelogram
This parallelogram has the greatest area.	
This parallelogram is the only parallelogram which doesn't have a whole number area.	
If both dimensions of this parallelogram were doubled, this parallelogram would have an area of 800cm^2 .	
The combined area of these 2 parallelograms is greater than 500cm^2 , but less than 540cm^2 .	



Parallelogram Problem

Here are three parallelograms (not drawn to scale). Read each clue and work out which of the parallelograms is being described.



Clue	Parallelogram
This parallelogram has the greatest area.	B
This parallelogram is the only parallelogram which doesn't have a whole number area.	C
If both dimensions of this parallelogram were doubled, this parallelogram would have an area of 800cm^2 .	A
The combined area of these 2 parallelograms is greater than 500cm^2 , but less than 540cm^2 .	B and C

Calculate the Base or Height



Here is a parallelogram. You are given the height and the area. How can you work out the base of the parallelogram?

Let's put the information we know into a calculation:

$$8 \times \square = 128\text{cm}^2$$

To find out what number will fit into the missing box, we can do an inverse operation:

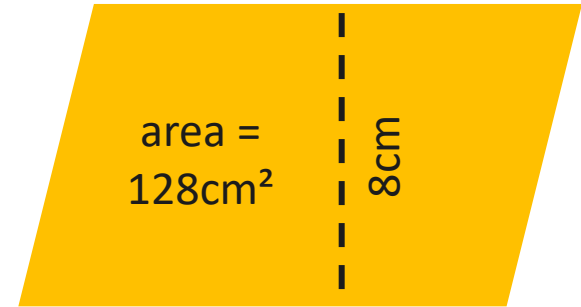
$$128\text{cm}^2 \div 8 = \square$$

$$128 \div 8 = 16$$

$$\text{base} = 16\text{cm}$$

Let's check:

$$16 \times 8 = 128$$



Calculate the Base or Height



Here is a parallelogram. You are given the height and the area. How can you work out the base of the parallelogram?

Let's put the information we know into a calculation:

$$8 \times \square = 128\text{cm}^2$$

To find out what number will fit into the missing box, we can do an inverse operation:

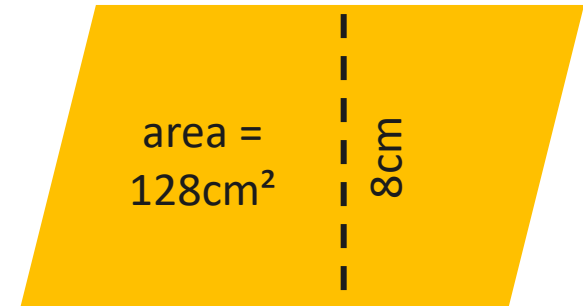
$$128\text{cm}^2 \div 8 = \square$$

$$128 \div 8 = 16$$

$$\text{base} = 16\text{cm}$$

Let's check:

$$16 \times 8 = 128$$



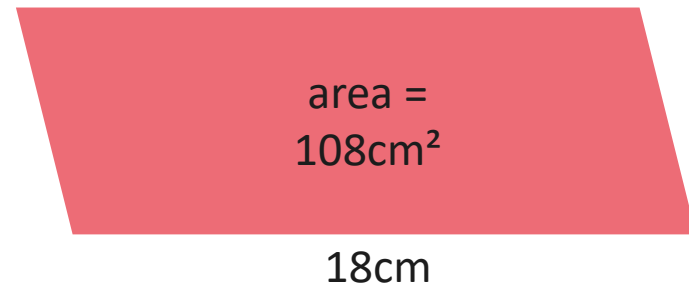
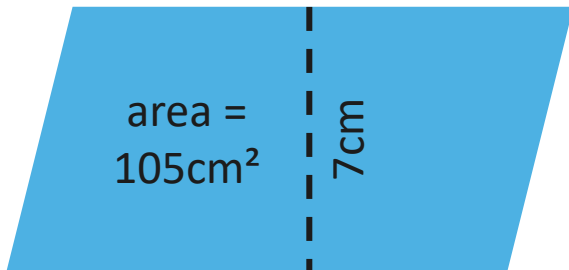
Answer:

$$\text{base} = 16\text{cm}$$

Calculate the Base or Height



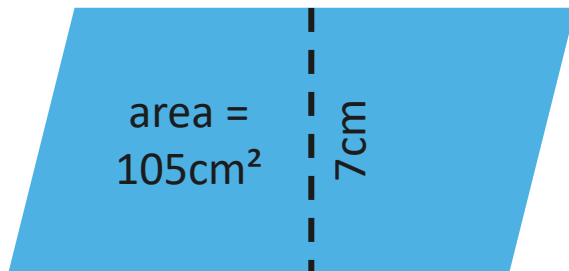
Here are 2 parallelograms. Calculate the base or the height of each.



Calculate the Base or Height

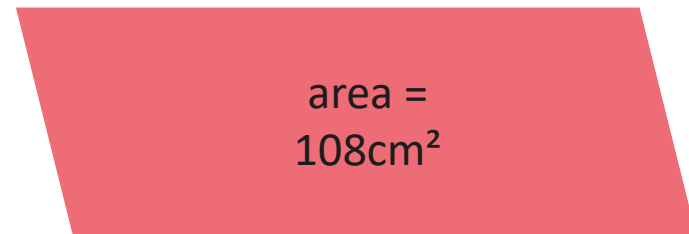


Here are 2 parallelograms. Calculate the base or the height of each.



Answer:

base = 15cm



18cm

Answer:

height = 6cm



Activities

Red – 1 Star

Yellow – 2 Star

Green – 3 Star

Purple – extra challenge

Mastery – all groups