













# Measurement: Area of Rectangles and Squares

<p><b>Aim:</b> Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>), and estimate the area of irregular shapes.</p> <p>DfE Ready-to-Progress Criteria: Compare and calculate areas (5G-2).</p> <p>To calculate the area of rectangles and squares.</p>	<p><b>Success Criteria:</b> I can multiply length by width to calculate area.</p> <p>I can record area in standard units (square centimetres and square metres).</p>	<p><b>Resources:</b> Lesson Pack</p> <p>Squared paper – as required</p>
	<p><b>Key/New Words:</b> Area, rectangle, square, multiplication, length, width.</p>	<p><b>Preparation:</b> Differentiated <a href="#">Calculating Area Activity Sheet</a> – one per child</p> <p><a href="#">Diving into Mastery Activity Sheets</a> – one per child</p> <p><a href="#">Using Multiplication to Calculate Area Activity Sheet</a> – as required</p>

**Prior Learning:** It will be helpful if children have found the area by counting squares.

## Learning Sequence

	<p><b>Remember It:</b> Using the <a href="#">Lesson Presentation</a>, children discuss what is the same and what is different about the two arrays shown.</p>	
	<p><b>Counting the Squares:</b> Look at the task on the <a href="#">Lesson Presentation</a> and ask children to write a definition for area. Ask three or four children for their definitions and discuss before showing them the definition on the <a href="#">Lesson Presentation</a>. Explain that we can calculate area by counting squares. Children work through examples and calculate the area by counting squares.</p>	
	<p><b>Using Multiplication to Calculate Area:</b> Explain how to use multiplication to calculate area. <a href="#">The Lesson Presentation</a> shows how to calculate the area of squares and rectangles by multiplying the length by the width. The children can then use multiplication to calculate the area of the squares and rectangles drawn on a square grid. Ask them to write a multiplication calculation to show how they calculated the area. The shapes shown on the last slide are found in the <a href="#">Using Multiplication to Calculate Area Activity Sheet</a> if you would prefer to print this off instead. <b>Can children multiply length by width to calculate area?</b></p>	
	<p><b>Calculating Area in cm<sup>2</sup>:</b> Introduce how to record area using cm<sup>2</sup>. Children can practise calculating the area of the shapes shown on the <a href="#">Lesson Presentation</a> by multiplying the length by the width. <b>Can children record area in standard units (square centimetres)?</b></p>	
	<p><b>Units of Measure:</b> Using the <a href="#">Lesson Presentation</a>, discuss with children the difference between cm<sup>2</sup> and m<sup>2</sup>. Children work in pairs to discuss whether the statements on the <a href="#">Lesson Presentation</a> would be measured in cm<sup>2</sup> or m<sup>2</sup>.</p>	
	<p><b>Calculating Area in m<sup>2</sup>:</b> Introduce how to record area using m<sup>2</sup>. Children can practise calculating the area of the shapes shown on the <a href="#">Lesson Presentation</a> by multiplying the length by the width. Children reason about whether two children have calculated the area correctly, identifying and explaining their mistakes. <b>Can children record area in standard units (square metres)?</b></p>	
	<p><b>An Area Problem:</b> Using the <a href="#">Lesson Presentation</a>, children apply their understanding of calculating area to a real-life problem. They investigate whether Marney has enough money to tile her water feature.</p>	

	<p><b>Calculating Area:</b> Children complete the differentiated <a href="#">Calculating Area Activity Sheet</a>, calculating the area of squares and rectangles by counting squares and multiplying the length by the width.</p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="244 192 592 658">  <p>Children recap their 4 times tables. They use multiplication to calculate the area of shapes of which one side measures 4cm. They then calculate the area of shapes using knowledge of other times tables. With support, they reason to find the missing measurement of a square and use this to calculate area. <math>\text{cm}^2</math> is given for them to record their answer.</p> </div> <div data-bbox="627 192 975 600">  <p>Children calculate the area of shapes using multiplication, using their knowledge of times tables and of Y5 multiplication. They multiply the length by the width and record the answers in <math>\text{cm}^2</math> and <math>\text{m}^2</math>. They reason to find missing measurements of squares and rectangles and use this to calculate area.</p> </div> <div data-bbox="1010 192 1358 573">  <p>Children calculate the area of shapes using multiplication, using their knowledge of times tables and of Y5 multiplication. They multiply the length by the width and record answers in <math>\text{cm}^2</math> and <math>\text{m}^2</math>. They reason to find the length of a missing side where the area and length of one side is given.</p> </div> </div>	
	<p><b>Diving into Mastery:</b> Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.</p> <div style="display: flex; flex-direction: column; gap: 10px;"> <div data-bbox="244 813 1276 891">  <p>Children answer fluency questions that require them to calculate the area of squares and rectangles. They apply their understanding of area to a worded problem where they need to calculate the area of a bathroom that has been tiled.</p> </div> <div data-bbox="244 918 1350 996">  <p>Children calculate the lengths of a rectangle when the area, and clues about its sides, are given. They investigate whether statements are true or false, providing examples to demonstrate their thinking. They reason whether the rectangle with the largest area always has the largest perimeter too.</p> </div> <div data-bbox="244 1023 967 1102">  <p>Children use limited clues to find areas of related rectangles.</p> </div> </div>	
	<p><b>Area of 24:</b> On squared paper, ask the children to draw as many different rectangles as they can which have an area of <math>24\text{cm}^2</math>. They should write a multiplication calculation to show how to calculate the area. Work through all possible permutations as shown on the <a href="#">Lesson Presentation</a>.</p>	

**ExploreIt**

**WritelT:** Children write instructions for how to find the area of squares or rectangles.

**Rollt:** In pairs, children take turns to roll a dice twice each. The first roll gives the length of a rectangle and the second gives the width. Find the area of this rectangle. The person with the largest area scores one point. The first player to get to 10 points wins the game.

**MeasureIt:** Children measure the length and width of (a flat surface of) rectangular objects around the room, and multiply the length by the width to calculate the area of the surface.

**LearnIt:** Children will find this visually exciting useful tool for finding the area of rectangles and squares.



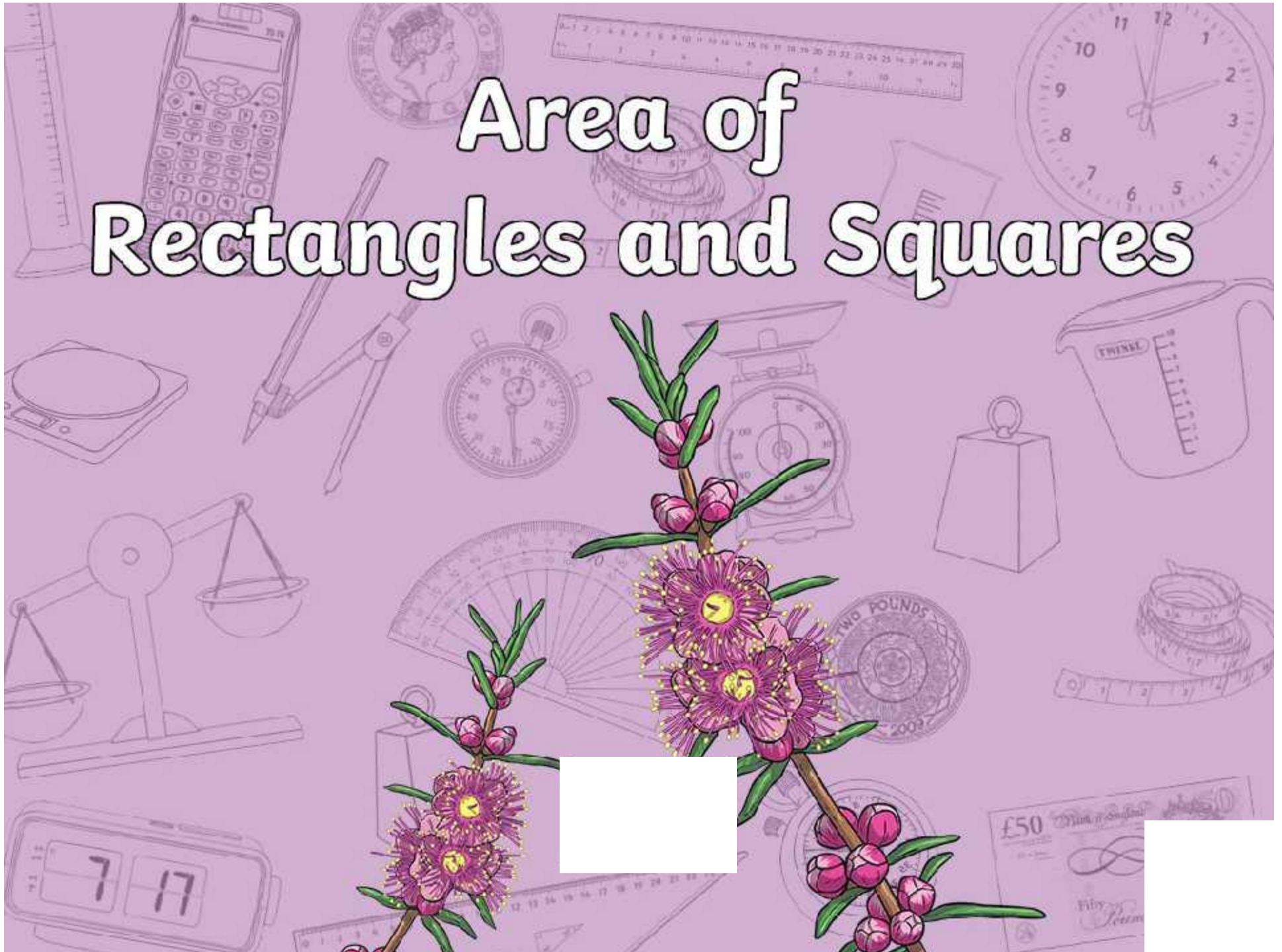
# Maths

## Measurement



Maths | Measurement | Calculate Area |  
Lesson 1 of 4: Area of Rectangles and Squares

# Area of Rectangles and Squares



# Aim

- To calculate the area of rectangles and squares.

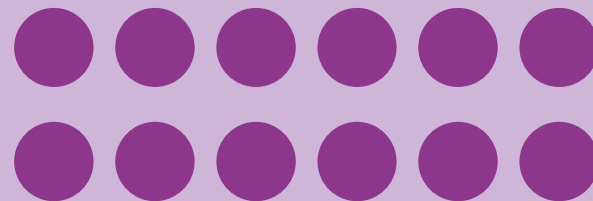
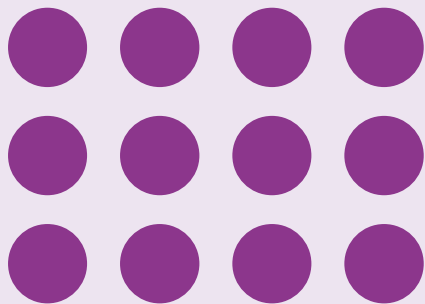
# Success Criteria

- I can multiply length by width to calculate area.
- I can record area in standard units (square centimetres and square metres).

# Remember It



What is the same and what is different about these arrays?



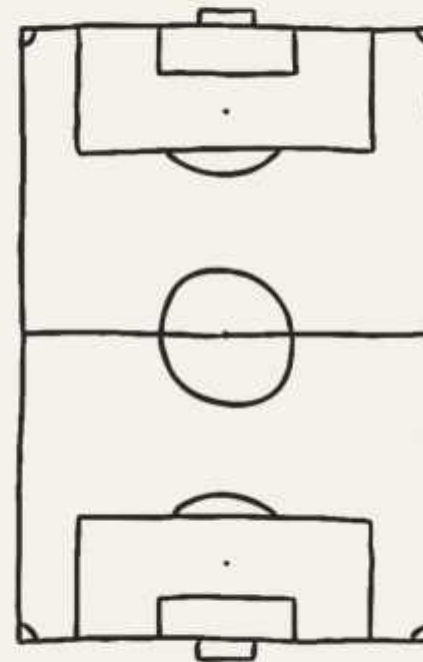
Both arrays have 12 counters in total. The array on the left shows 3 rows of 4 counters. The array on the right shows 2 rows of 6 counters.

# Counting the Squares



Write a definition for 'area'.

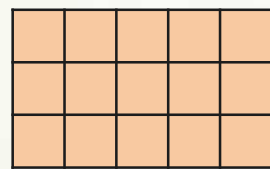
For example, how much carpet is needed to cover a floor? How large must a car parking space be to fit one car? It is useful to find the area when working out how much of something will be needed to cover a surface or when calculating how many or much of something will fit into a space.



# Counting the Squares



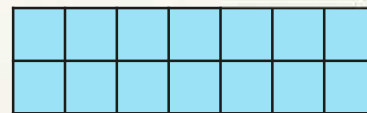
Count the squares to find the area of these rectangles and squares.  
Order them from smallest to greatest area.



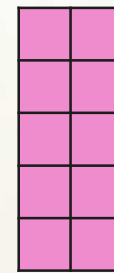
Shape A

15 squares

14 squares

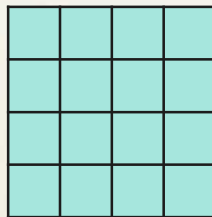


Shape B



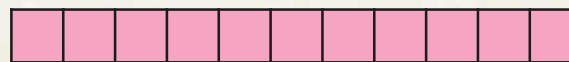
Shape C

10 squares



Shape D

16 squares



Shape E

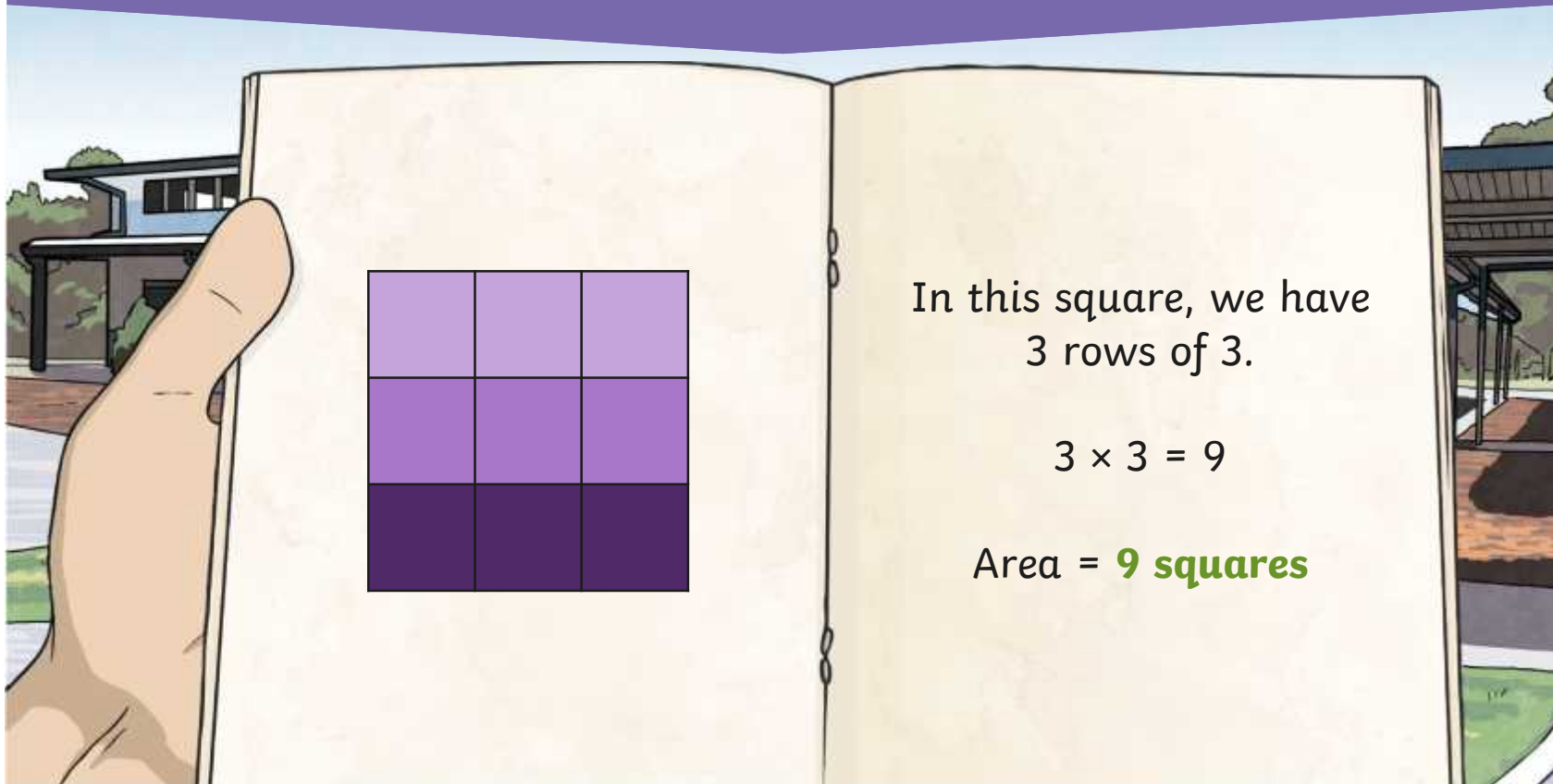
11 squares



# Using Multiplication to Calculate Area



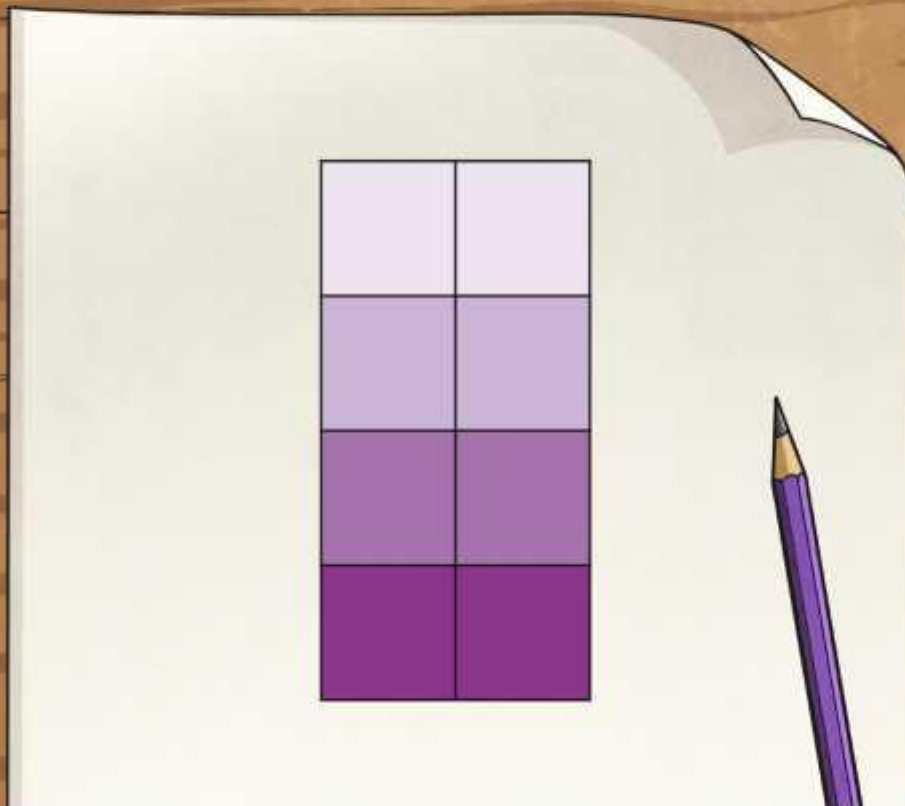
We can calculate area by counting squares. This square has an area of 9 squares. Another way to calculate the area is to use multiplication.



# Using Multiplication to Calculate Area



How could we use multiplication to calculate the area of this rectangle?



$$4 \times 2 = 8$$

Area = 8 squares

# Using Multiplication to Calculate Area



To find the area of a rectangle, multiply the length by the width.

$3 \times 5 = 15$  squares

$4 \times 5 = 20$  squares

$2 \times 10 = 20$  squares

$5 \times 5 = 25$  squares

$2 \times 8 = 16$  squares

# Calculating Area in $\text{cm}^2$



If we know the length and the width of a rectangle or square, we can calculate its area.

$$4\text{cm} \times 5\text{cm} =$$

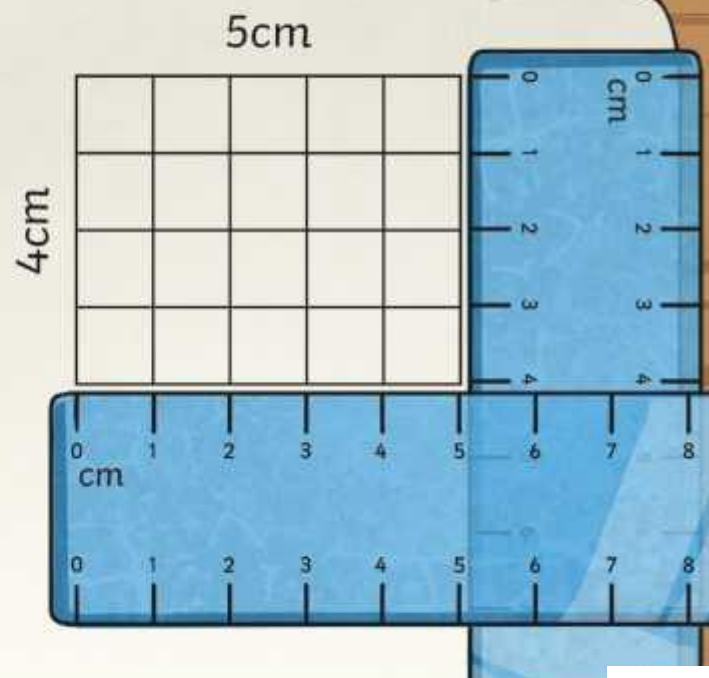
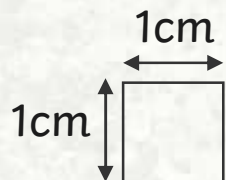
**20 square centimetres**

We write this as  **$20\text{cm}^2$**

What is the other multiplication we could do to find the area?

$$5\text{cm} \times 4\text{cm} = 20\text{cm}^2$$

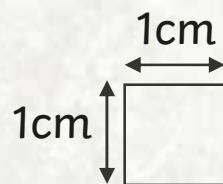
$$\text{Area} = 20\text{cm}^2$$



# Calculating Area in $\text{cm}^2$



Calculate the area of this shape.

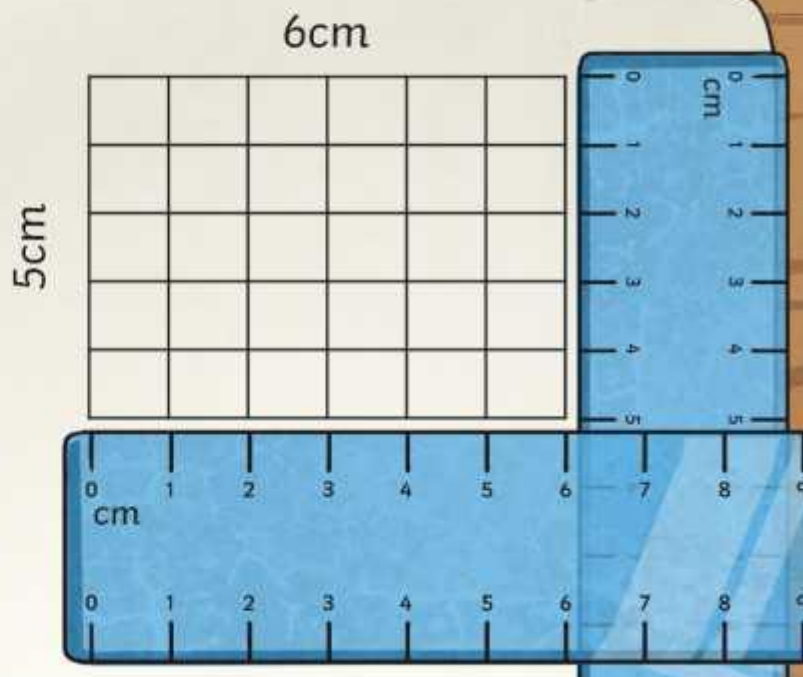


$$5\text{cm} \times 6\text{cm} = 30\text{cm}^2$$

or

$$6\text{cm} \times 5\text{cm} = 30\text{cm}^2$$

$$\text{Area} = 30\text{cm}^2$$



# Units of Measure



The most commonly used measurements for calculating area are  $\text{cm}^2$  and  $\text{m}^2$ . Metres squared, or  $\text{m}^2$ , refers to a square with length and width of 1m.

For each of the statements below, would you use  $\text{cm}^2$  and  $\text{m}^2$  to calculate the area? Discuss with your partner.

The area of  
a school  
playground

The area of  
a hamster's  
cage

The area of a  
building site  
for a new  
block of flats

The area of a  
laptop case

The area of  
a banknote

# Calculating Area in m<sup>2</sup>



When we calculate an area in metres, we measure this in **square metres**.

We can also write this as **m<sup>2</sup>**. This is because it describes how many 1m by 1m squares make up the area.

$6m \times 6m = 36m^2$   
**Area = 36m<sup>2</sup>**

Imagine that each square you see on

Do we need to do another multiplication? Why/why not?

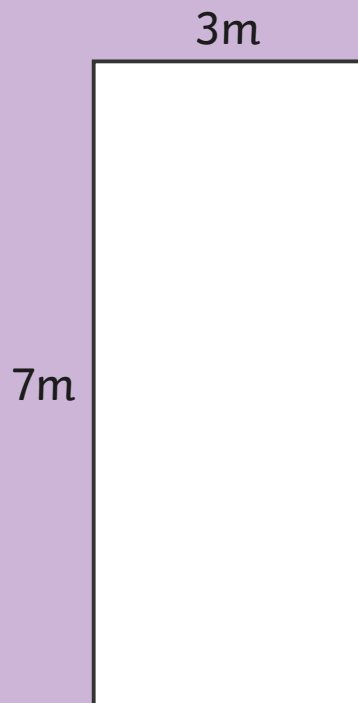
Calculate the area of this shape.



# Calculating Area in $m^2$



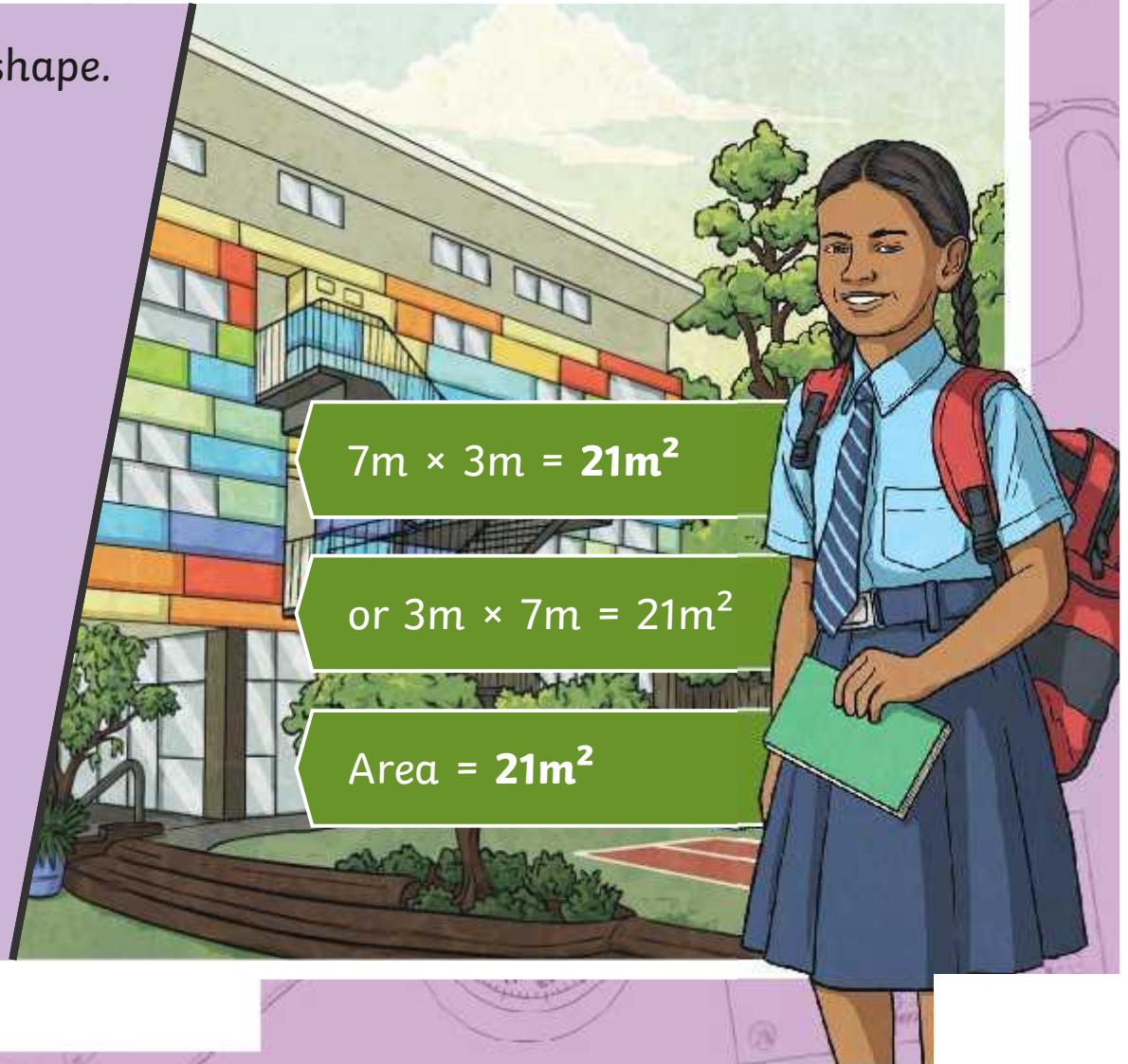
Calculate the area of this shape.



$$7m \times 3m = 21m^2$$

$$\text{or } 3m \times 7m = 21m^2$$

$$\text{Area} = 21m^2$$





# Calculating Area in $m^2$



Ciara thinks the area of this shape is  $16m^2$ . Do you agree with her?

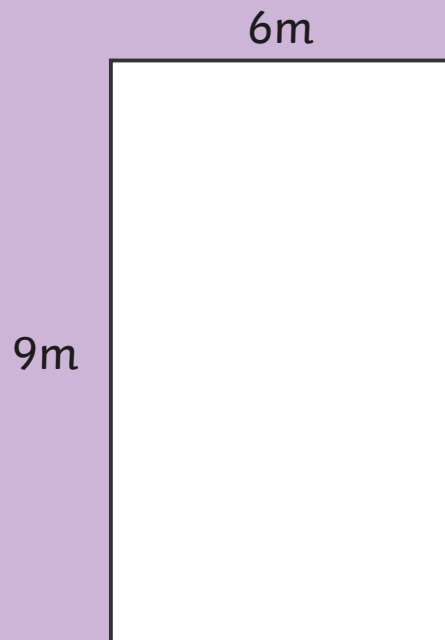


Ciara has added the two sides rather than multiplied them. The correct answer is  $60m^2$ .

# Calculating Area in $m^2$



Brody thinks the area of this shape is  $45\text{cm}^2$ . What mistake has he made?

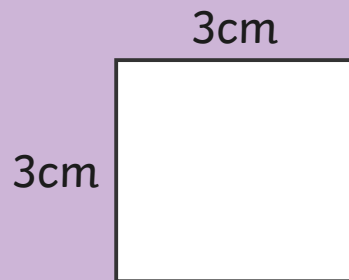


Brody has made two mistakes. He has multiplied 9 and 6 to get 45 when the answer is 54. He has also used the wrong unit of measure. As both sides are measured in metres, the unit of measure he needed to use was  $m^2$ .

# An Area Problem



Marney wants to tile a water feature in her garden. Each tile is a square 3cm by 3cm. The tiles costs £2 each.



Marney's water feature is a rectangle with an area of  $405\text{cm}^2$ . She has a budget of £100.

Does she have enough money to complete her project?

Yes, Marney has enough money. Each tile covers a  $9\text{cm}^2$  area. Marney will therefore need 45 tiles to cover the water feature.

$45 \times \text{£}2 = \text{£}90$   
Marney is within budget.

# Calculating Area



Now, use your amazing area skills to complete these activities.

**Calculating Area**  
To calculate the area of rectangles and squares.

1. Fill in the answers to the 4 times table. This will help you in the next question.

$1 \times 4 =$	$4 \times 4 =$	$7 \times 4 =$	$10 \times 4 =$
$2 \times 4 =$	$5 \times 4 =$	$8 \times 4 =$	$11 \times 4 =$
$3 \times 4 =$	$6 \times 4 =$	$9 \times 4 =$	$12 \times 4 =$

2. Calculate the area of these shapes in  $\text{cm}^2$  and write a multiplication fact to show how you found the area. You can use the 4 times table that you completed in the first question to help. The shapes in these questions may not be drawn to scale. The first one has been done for you.

a) Multiplication fact:  $4 \times 2 = 8$   
Area =  $8 \text{ cm}^2$

b) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

c) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

d) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

e) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

f) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

**Challenge!** We know that all the sides of a square are the same length. What will the width of this square be? Can you then find the area?

**Calculating Area**  
To calculate the area of rectangles and squares.

1. Calculate the area of these 2 rectangles in  $\text{cm}^2$  or  $\text{m}^2$  to record your answer. The shapes are drawn to scale. Remember to look carefully at the units.

a) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

b) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

c) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

d) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{cm}^2$

**Calculating Area**  
To calculate the area of these 2 squares in  $\text{cm}^2$  or  $\text{m}^2$ . Remember to look carefully at the units.

a) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{m}^2$

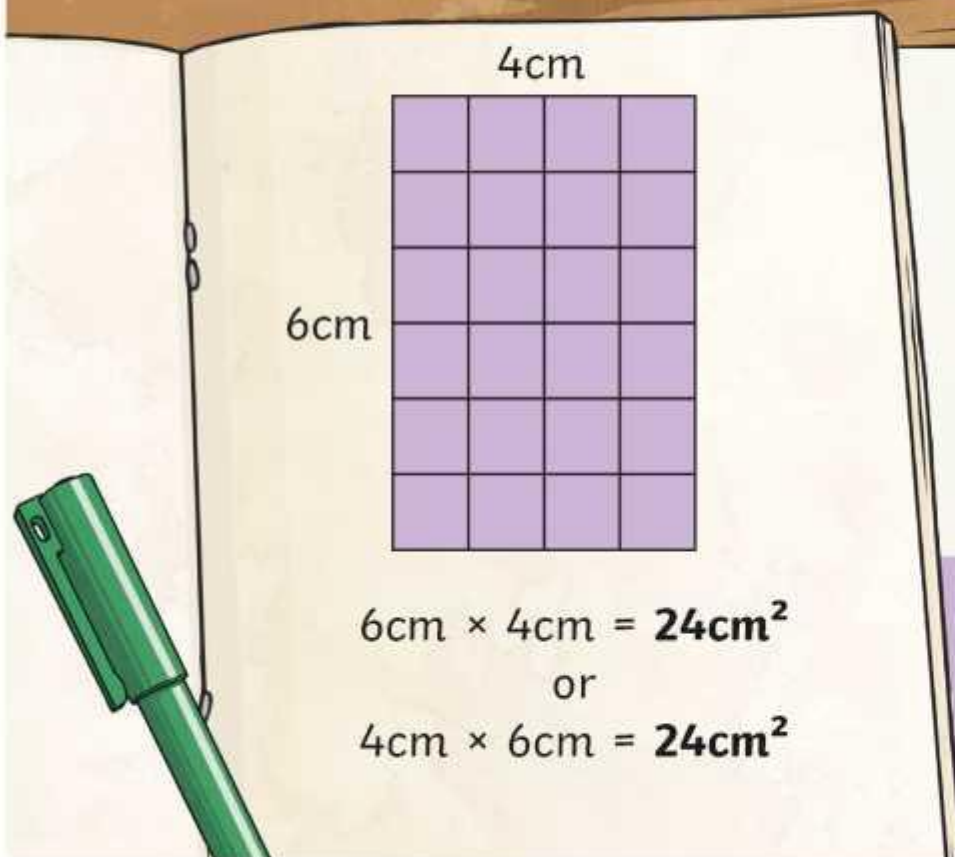
b) Multiplication fact: \_\_\_\_\_  
Area = \_\_\_\_\_  $\text{m}^2$



# Area of 24



On squared paper, draw different rectangles with an area of  $24\text{cm}^2$ .



Write a multiplication calculation to show how to calculate the area.

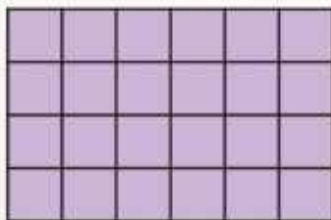
One rectangle has been drawn for you. How many others can you think of?

**Top Tip:**  
which pairs of numbers can be multiplied together to make 24?

# Area of 24

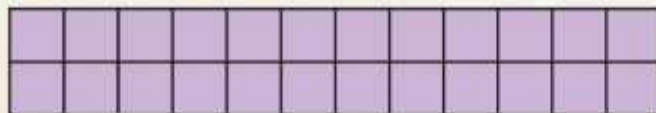


Compare your answers to these calculations:



$$4\text{cm} \times 6\text{cm} = 24\text{cm}^2$$
$$\text{or } 6\text{cm} \times 4\text{cm} = 24\text{cm}^2$$

$$2\text{cm} \times 12\text{cm} = 24\text{cm}^2$$
$$\text{or } 12\text{cm} \times 2\text{cm} = 24\text{cm}^2$$



$$3\text{cm} \times 8\text{cm} = 24\text{cm}^2$$
$$\text{or } 8\text{cm} \times 3\text{cm} = 24\text{cm}^2$$



$$1\text{cm} \times 24\text{cm} = 24\text{cm}^2 \text{ or } 24\text{cm} \times 1\text{cm} = 24\text{cm}^2$$



# Aim

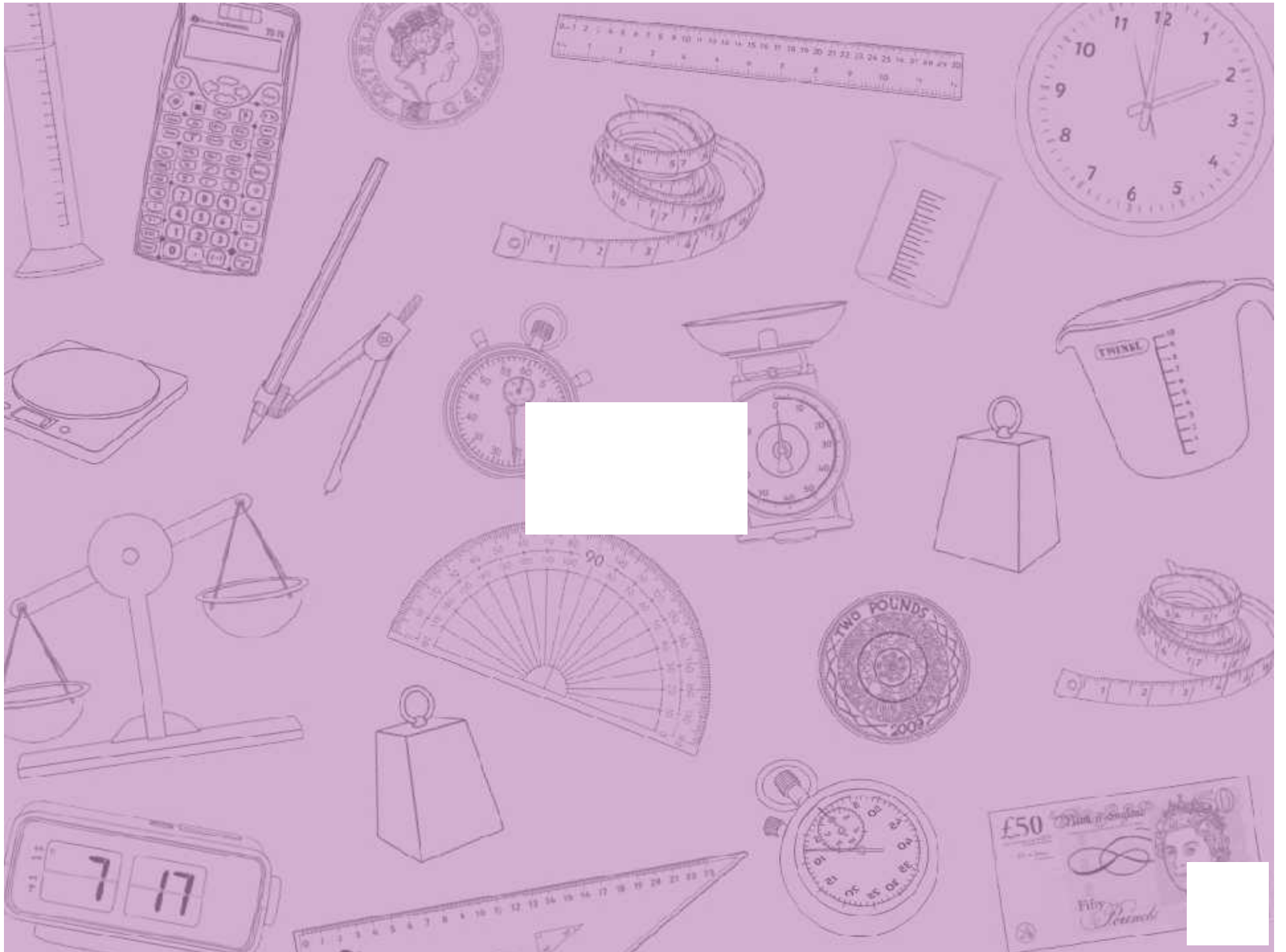


- To calculate the area of rectangles and squares.

# Success Criteria

- I can multiply length by width to calculate area.
- I can record area in standard units (square centimetres and square metres).





Aim: To calculate the area of rectangles and squares.				Date:					
				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can multiply length by width to calculate area.				Notes/Evidence					
I can record area in standard units (square centimetres and square metres).									
Next Steps									
) _____									
) _____									

<b>T</b>	Teacher	<b>I</b>	Independent
<b>PPA</b>	Planning, Preparation and Assessment	<b>AL</b>	Adult Led
<b>S</b>	Supply	<b>GP</b>	Guided Practice

Aim: To calculate the area of rectangles and squares.				Date:					
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Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can multiply length by width to calculate area.				Notes/Evidence					
I can record area in standard units (square centimetres and square metres).									
Next Steps									
) _____									
) _____									

<b>T</b>	Teacher	<b>I</b>	Independent
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# Calculating Area

To calculate the area of rectangles and squares.

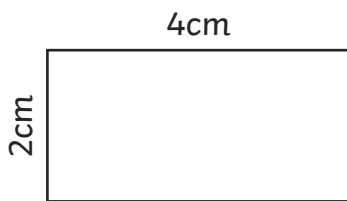


1. Fill in the answers to the 4 times table. This will help you in the next question.

$1 \times 4 =$	$4 \times 4 =$	$7 \times 4 =$	$10 \times 4 =$
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2. Calculate the area of these shapes in  $\text{cm}^2$  and write a multiplication fact to show how you found the area. You can use the 4 times table that you completed in the first question to help. The shapes in these questions may not be drawn to scale. The first one has been done for you.

a)

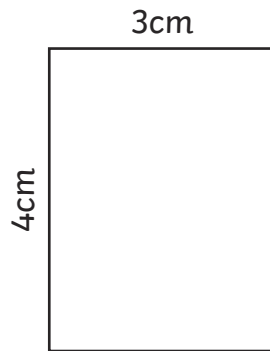


Multiplication fact:

$4 \times 2 = 8$  \_\_\_\_\_

Area = 8  $\text{cm}^2$

b)

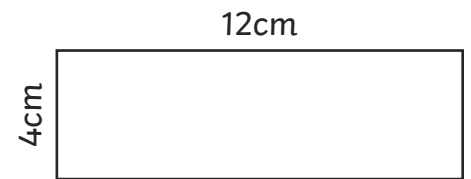


Multiplication fact:

\_\_\_\_\_

Area = \_\_\_\_\_  $\text{cm}^2$

c)

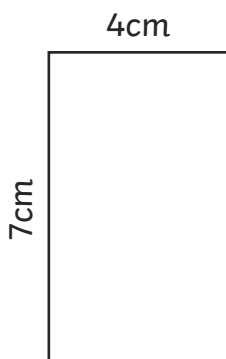


Multiplication fact:

\_\_\_\_\_

Area = \_\_\_\_\_  $\text{cm}^2$

d)

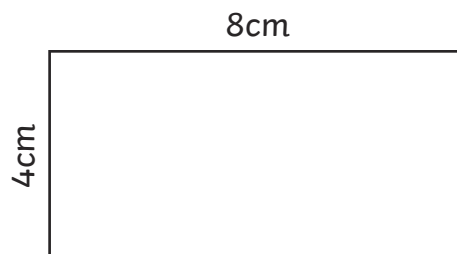


Multiplication fact:

\_\_\_\_\_

Area = \_\_\_\_\_  $\text{cm}^2$

e)

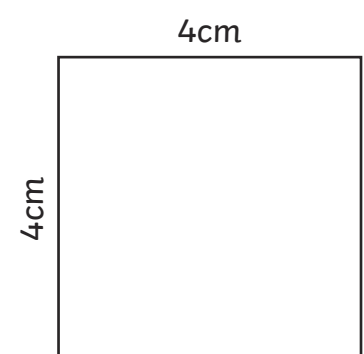


Multiplication fact:

\_\_\_\_\_

Area = \_\_\_\_\_  $\text{cm}^2$

f)



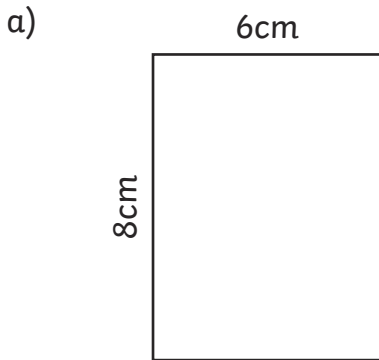
Multiplication fact:

\_\_\_\_\_

Area = \_\_\_\_\_  $\text{cm}^2$

## Calculating Area

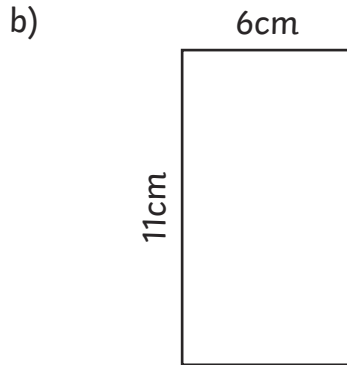
3. Now, use your knowledge of other times tables to calculate the areas of these 2 rectangles and 1 square and write a multiplication fact to show how you found the area.



Multiplication fact:

\_\_\_\_\_

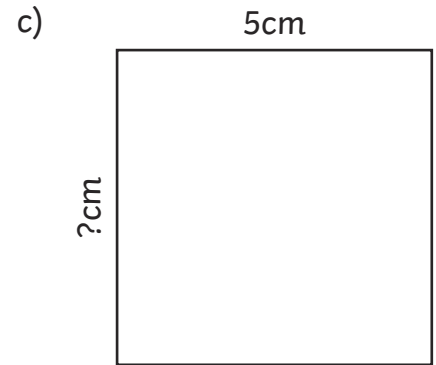
Area = \_\_\_\_\_  $\text{cm}^2$



Multiplication fact:

\_\_\_\_\_

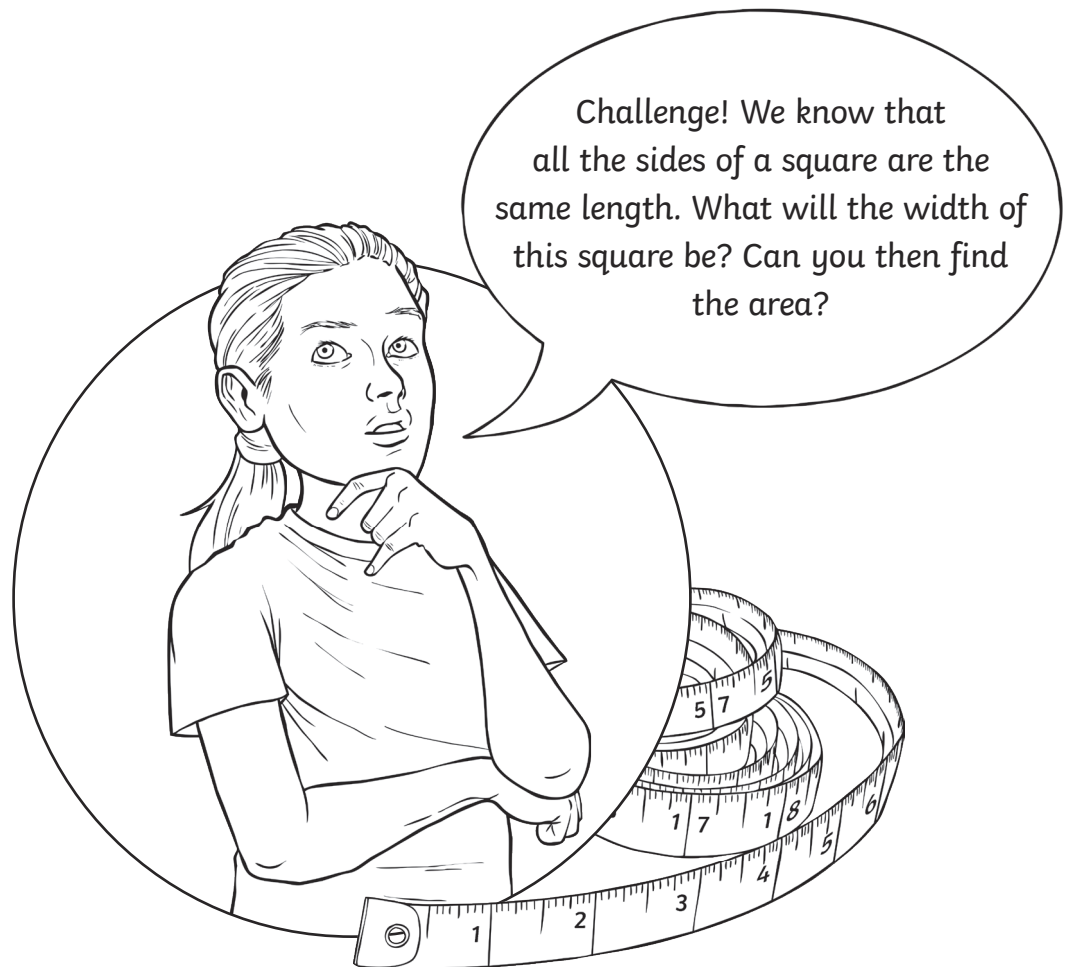
Area = \_\_\_\_\_  $\text{cm}^2$



Multiplication fact:

\_\_\_\_\_

Area = \_\_\_\_\_  $\text{cm}^2$



# Calculating Area Answers

1.  $1 \times 4 = 4$                        $4 \times 4 = 16$                        $7 \times 4 = 28$                        $10 \times 4 = 40$   
 $2 \times 4 = 8$                            $5 \times 4 = 20$                        $8 \times 4 = 32$                        $11 \times 4 = 44$   
 $3 \times 4 = 12$                          $6 \times 4 = 24$                        $9 \times 4 = 36$                        $12 \times 4 = 48$

2. a. Multiplication fact:  $4 \times 2 = 8$  or  $2 \times 4 = 8$   
Area =  $8\text{cm}^2$

b. Multiplication fact:  $3 \times 4 = 12$  or  $4 \times 3 = 12$   
Area =  $12\text{cm}^2$

c. Multiplication fact:  $12 \times 4 = 48$  or  $4 \times 12 = 48$   
Area =  $48\text{cm}^2$

d. Multiplication fact:  $7 \times 4 = 28$  or  $4 \times 7 = 28$   
Area =  $28\text{cm}^2$

e. Multiplication fact:  $8 \times 4 = 32$  or  $4 \times 8 = 32$   
Area =  $32\text{cm}^2$

f. Multiplication fact:  $4 \times 4 = 16$   
Area =  $16\text{cm}^2$

3. a. Multiplication fact:  $8 \times 6 = 48$  or  $6 \times 8 = 48$   
Area =  $48\text{cm}^2$

b. Multiplication fact:  $6 \times 11 = 66$  or  $11 \times 6 = 66$   
Area =  $66\text{cm}^2$

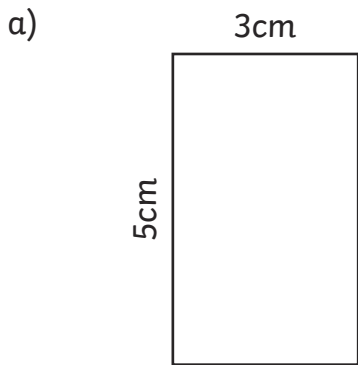
c. Multiplication fact:  $5 \times 5 = 25$   
Area =  $25\text{cm}^2$

# Calculating Area

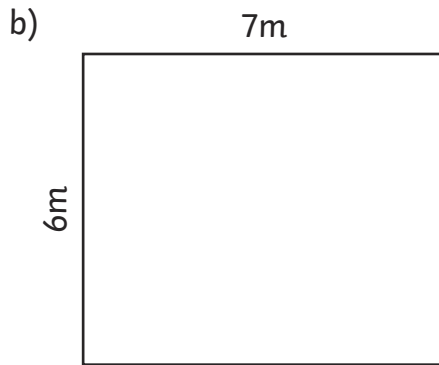
To calculate the area of rectangles and squares.



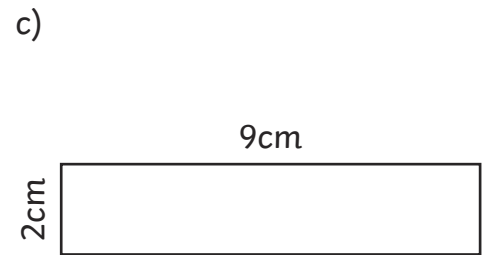
1. Calculate the area of these shapes and use  $\text{cm}^2$  or  $\text{m}^2$  to record your answer. The shapes in these questions may not be drawn to scale. Remember to look carefully at the units of measure.



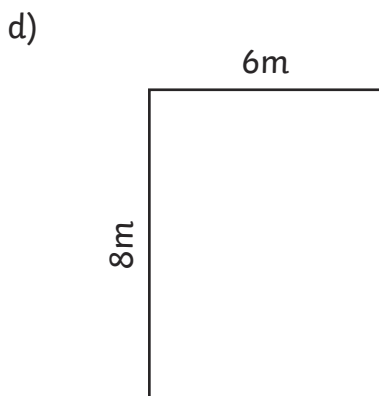
Area = \_\_\_\_\_



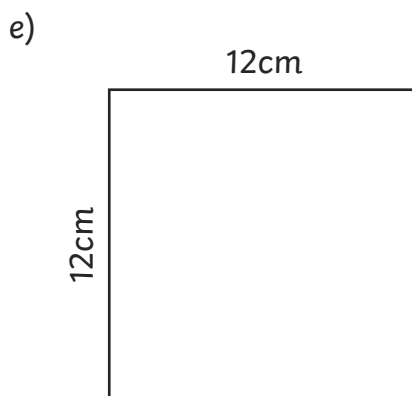
Area = \_\_\_\_\_



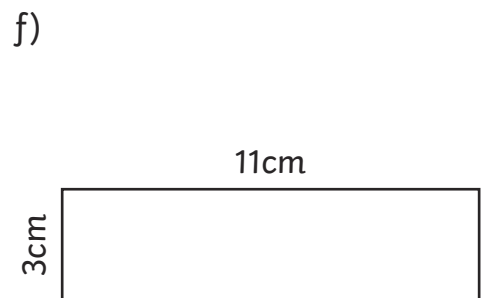
Area = \_\_\_\_\_



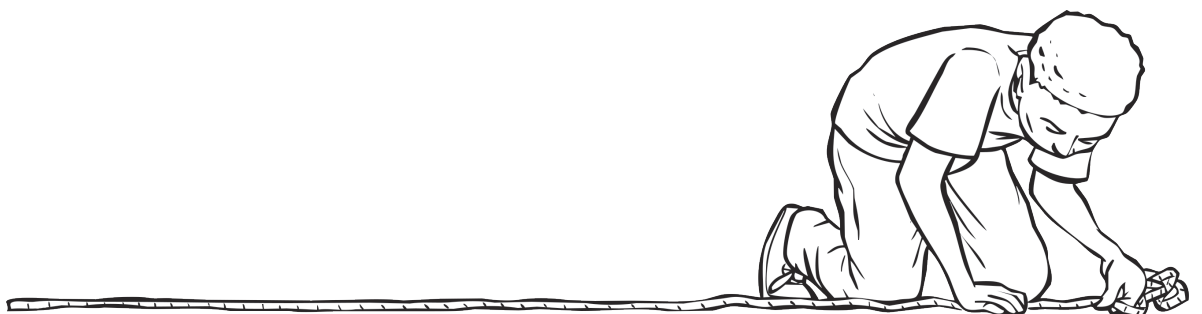
Area = \_\_\_\_\_



Area = \_\_\_\_\_



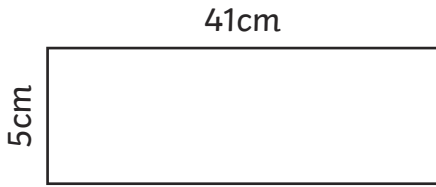
Area = \_\_\_\_\_



## Calculating Area

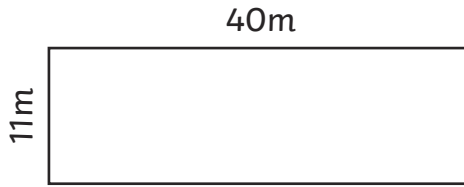
2. Now, use your knowledge of multiplying larger numbers to calculate the area of these shapes and use  $\text{cm}^2$  or  $\text{m}^2$  to record your answer. Remember to look carefully at the units of measure.

a)



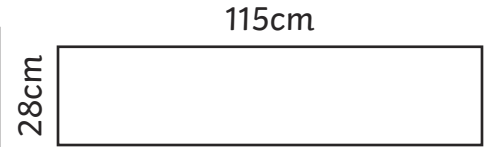
Area = \_\_\_\_\_

b)



Area = \_\_\_\_\_

c)

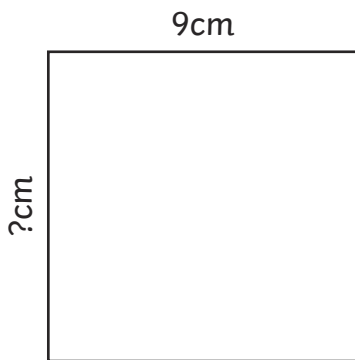


Area = \_\_\_\_\_

3. Can you find the missing measurements and use these to calculate the area of these 2 squares and 1 rectangle?

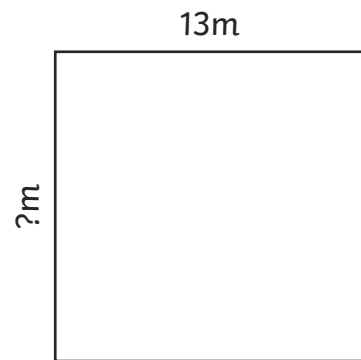
Top tip: think about what you know about squares and rectangles.

a)



Area = \_\_\_\_\_

b)



Area = \_\_\_\_\_

c)



Area = \_\_\_\_\_



# Calculating Area Answers

1.
  - a. Area =  $15\text{cm}^2$
  - b. Area =  $42\text{m}^2$
  - c. Area =  $18\text{cm}^2$
  - d. Area =  $48\text{m}^2$
  - e. Area =  $144\text{cm}^2$
  - f. Area =  $33\text{cm}^2$
  
2.
  - a. Area =  $205\text{cm}^2$
  - b. Area =  $440\text{m}^2$
  - c. Area =  $3220\text{cm}^2$
  
3.
  - a. **Children should recognise that 9cm is the missing measurement.**  
Area =  $81\text{cm}^2$
  - b. **Children should recognise that 13cm is the missing measurement.**  
Area =  $169\text{m}^2$
  - c. **Children should recognise that 18cm is the missing measurement.**  
Area =  $108\text{cm}^2$

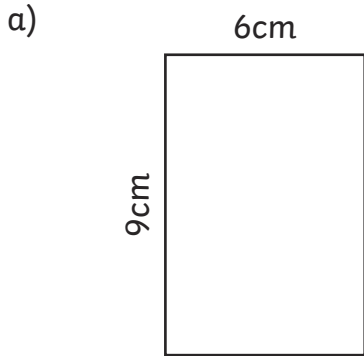


# Calculating Area

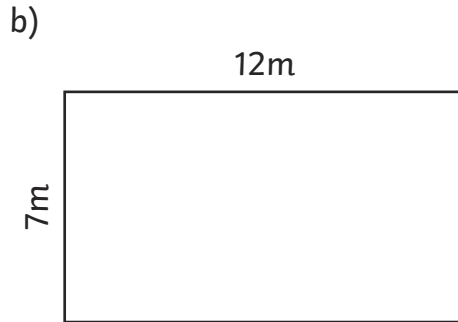
To calculate the area of rectangles and squares.



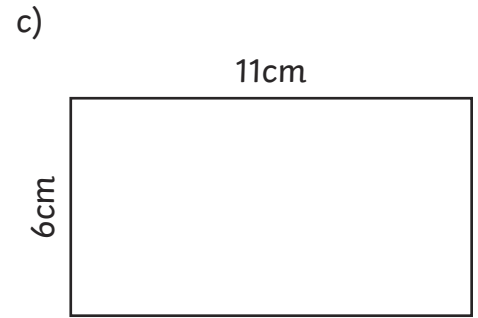
1. Calculate the area of these shapes and use  $\text{cm}^2$  or  $\text{m}^2$  to record your answer. The shapes in these questions may not be drawn to scale. Remember to look carefully at the units of measurement.



Area = \_\_\_\_\_

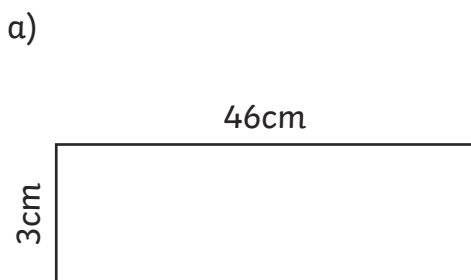


Area = \_\_\_\_\_

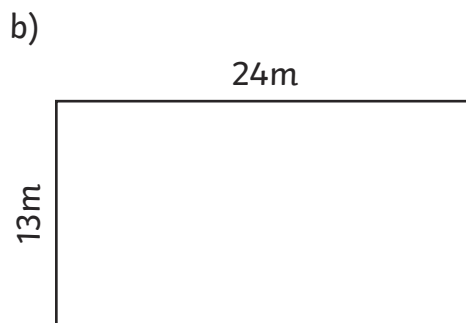


Area = \_\_\_\_\_

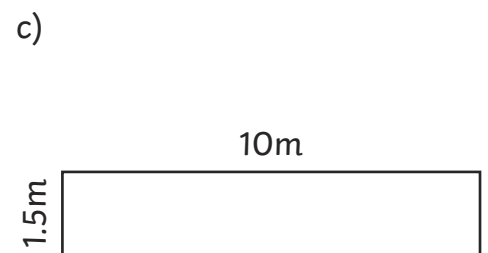
2. Now, use your knowledge of multiplying larger numbers to calculate the area of these shapes and use  $\text{cm}^2$  or  $\text{m}^2$  to record your answer. Remember to look carefully at the units.



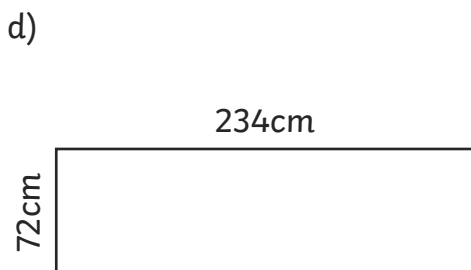
Area = \_\_\_\_\_



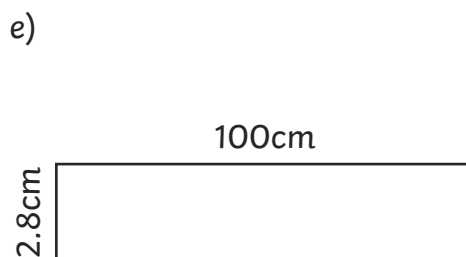
Area = \_\_\_\_\_



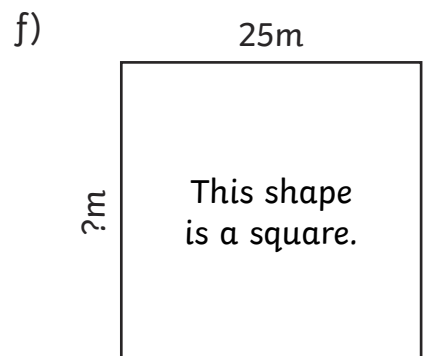
Area = \_\_\_\_\_



Area = \_\_\_\_\_



Area = \_\_\_\_\_

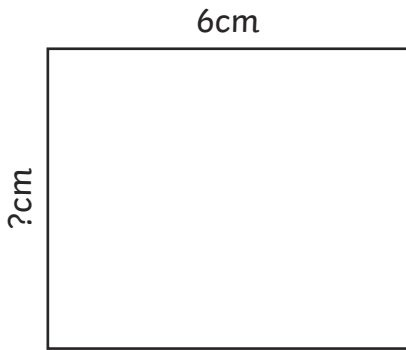


Area = \_\_\_\_\_

## Calculating Area

3. These three shapes all have an area of  $30\text{cm}^2$ . What are the measurements of the unlabelled sides? Show your working out.

a)

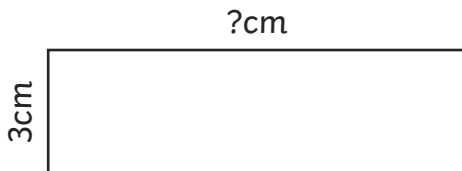


You know that  
 $6\text{cm} \times ? = 30\text{cm}^2$ .  
How could you find the  
missing measurement?



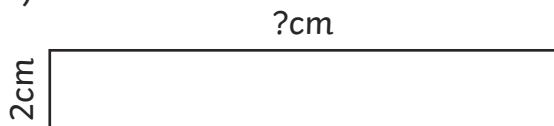
Missing side = \_\_\_\_\_

b)



Missing side = \_\_\_\_\_

c)



Missing side = \_\_\_\_\_

# Calculating Area Answers

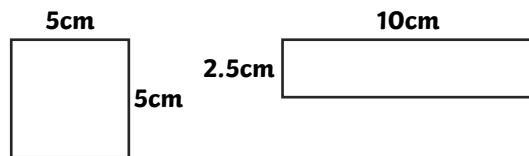
1.
  - a. Area = **54cm<sup>2</sup>**
  - b. Area = **84m<sup>2</sup>**
  - c. Area = **66cm<sup>2</sup>**
  
2.
  - a. Area = **138cm<sup>2</sup>**
  - b. Area = **312m<sup>2</sup>**
  - c. Area = **15m<sup>2</sup>**
  - d. Area = **16 848cm<sup>2</sup>**
  - e. Area = **280cm<sup>2</sup>**
  - f. **Children should recognise that 25m is the missing measurement.**  
Area = **625m<sup>2</sup>**
  
3. **Children's working out for all questions should show understanding of the reciprocal relationship between multiplication and division - that you must divide the area by the given measurement to find the unlabelled measurement. Children may also use understanding of factor pairs to answer these questions.**
  - a. **4cm**
  - b. **8cm**
  - c. **12cm**



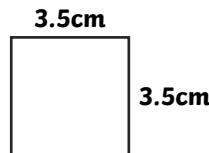
- 1) a)  $312\text{cm}^2$   
 b)  $520\text{m}^2$   
 c)  $15\text{m}^2$
- 2) Answers will vary but may include rectangles with the following measurements:  
 $1\text{cm} \times 30\text{cm}$ ,  $2\text{cm} \times 15\text{cm}$ ,  $3\text{cm} \times 10\text{cm}$ ,  $5\text{cm} \times 6\text{cm}$
- 3) One square has an area of  $25\text{cm}^2$ . 8 tiles are already on the wall. Another column will mean that there are 10 in total.  
 $10 \times 25\text{cm}^2 = 250\text{cm}^2$   
 The total tiled area will be  $250\text{cm}^2$ .



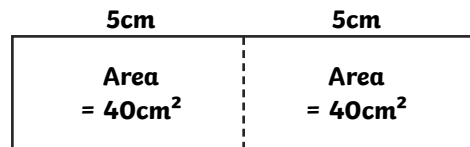
- 1) Length =  $15\text{cm}$   
 Width =  $5\text{cm}$
- 2) a) False. One example is:  
 The square has a perimeter of  $20\text{cm}$  and an area of  $25\text{cm}^2$  whereas the rectangle has a perimeter of  $25\text{cm}$  and an area of  $25\text{cm}^2$ .



- b) False. One example is:  
 This shape would have an area of  $12.25\text{cm}^2$ .



- c) True. One example is:  
 The two rectangles have a combined area of  $80\text{cm}^2$ .



- 3) Romesh could be right but he could also not be.  
 Shape A could have a perimeter of  $58\text{cm}$  (length of  $27\text{cm}$  and width of  $2\text{cm}$ ). Shape B could have a perimeter of  $59\text{cm}$  (length of  $27.5\text{cm}$  and width of  $2\text{cm}$ ). However, the perimeter of shape B could also be  $31\text{cm}$  (length of  $10\text{cm}$  and width of  $5.5\text{cm}$ ) meaning that it would be smaller than the perimeter of shape A.

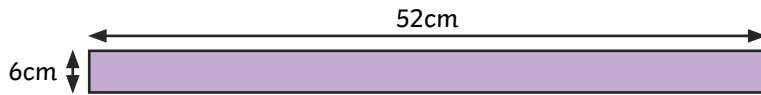


- 1) Garage:  $60\text{m}^2$   
 Living Room:  $144\text{m}^2$   
 Hallway:  $36\text{m}^2$   
 Kitchen:  $60\text{m}^2$   
 Total Area:  $300\text{m}^2$
- 2) Children will find different solution to this problem. The total area of the four rooms should be  $300\text{m}^2$ .



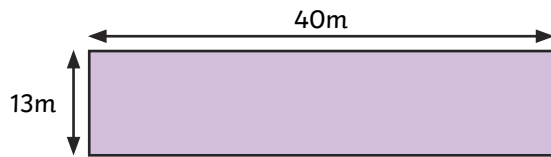
1) Calculate the area of the following rectangles:

a)



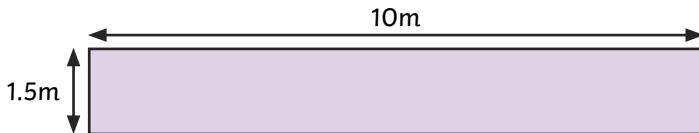
Area = \_\_\_\_\_

b)



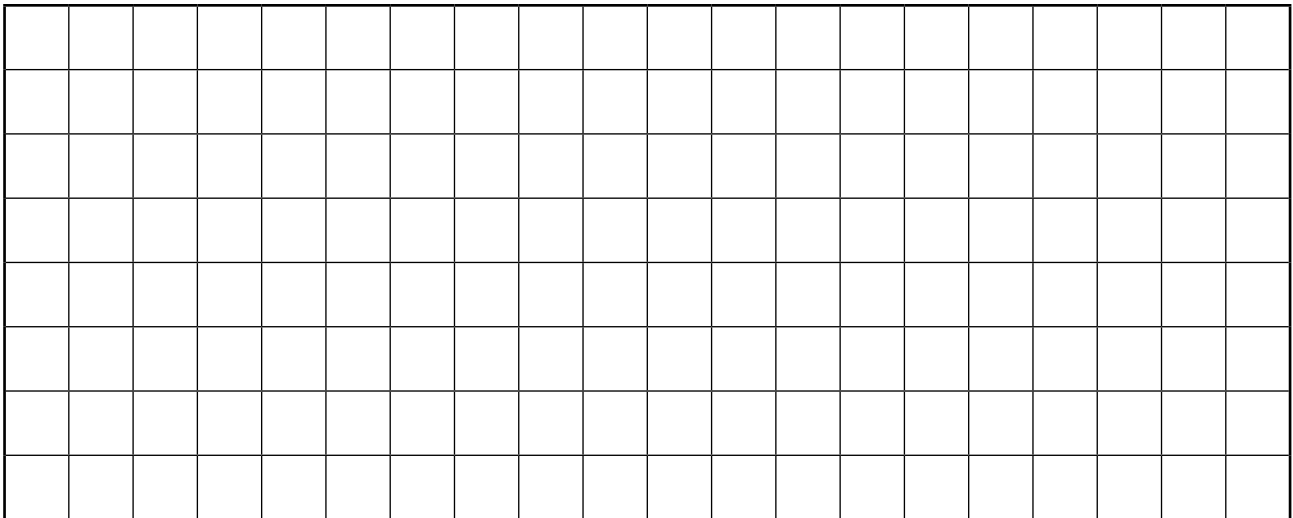
Area = \_\_\_\_\_

c)

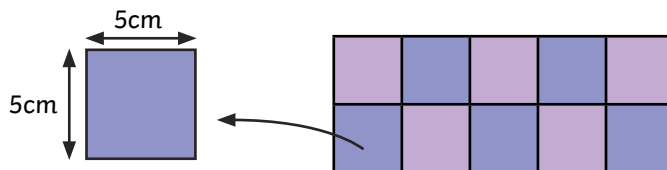


Area = \_\_\_\_\_

2) Draw 3 different rectangles with an area of  $30\text{cm}^2$  on squared paper and label the lengths of their sides.



3) Miami is retiling their bathroom. Each tile is a square with width and length of 5cm.



So far, they have tiled 4 columns of 2 tiles.  
If Miami tiles another column, what is the total area they will have tiled?

\_\_\_\_\_





- 1) A rectangle has an area of  $75\text{cm}^2$ . The length is three times greater than the width. Calculate the length and width of the shape.

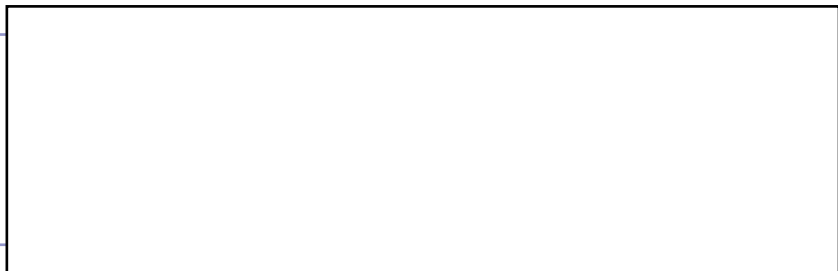
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- 2) Investigate the statements below. Are they true or false? Draw two shapes for each question to prove your answer.

a) If a square and a rectangle whose sides are not all equal have the same area, they will have the same perimeter.



b) A square can never have an area greater than  $9\text{cm}^2$  but less than  $16\text{cm}^2$ .



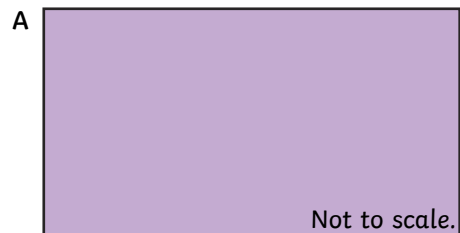
c) If I cut an  $80\text{cm}^2$  rectangle into 2 new rectangles, they will have a combined area of  $80\text{cm}^2$ .



- 3) Look at Romesh's statement below.



The area of shape A is  $54\text{cm}^2$ .  
The area of shape B is  $55\text{cm}^2$ .  
Therefore, the perimeter of shape B is greater.



Do you agree with Romesh? Explain your answer.

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1) Here is the layout of one floor of a house not drawn to scale. Use the clues below to work out the area of each room and the total area of this floor of the house.

- The garage and the kitchen are identical rectangles.
- The whole house is 20m long and 15m wide.
- The garage has walls of 15m and 4m.
- The living room is a square.

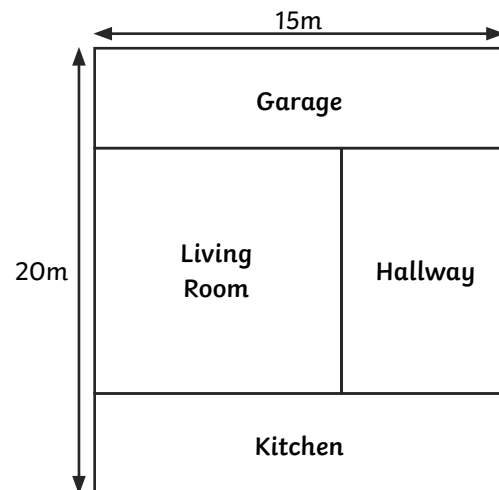
Garage: \_\_\_\_\_

Living Room: \_\_\_\_\_

Hallway: \_\_\_\_\_

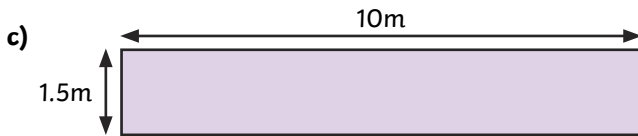
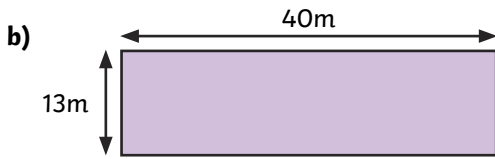
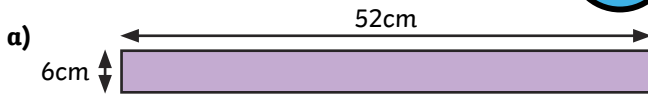
Kitchen: \_\_\_\_\_

Total Area: \_\_\_\_\_



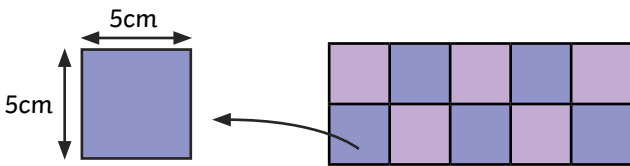
2) Investigate a different way of dividing up the house into four rooms. The length and width of the whole house and its total area should be the same as in question 1. Write some clues for a friend to solve.

1) Calculate the area of the following rectangles:



2) Draw 3 different rectangles with an area of  $30\text{cm}^2$  on squared paper and label the lengths of their sides.

3) Miami is retiling their bathroom. Each tile is a square with width and length of 5cm.

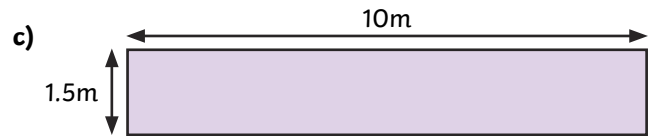
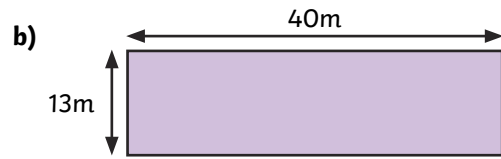
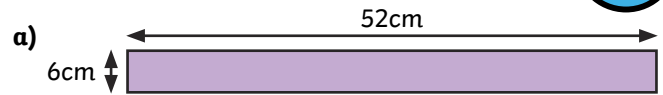


So far, they have tiled 4 columns of 2 tiles.

If Miami tiles another column, what is the total area they will have tiled?

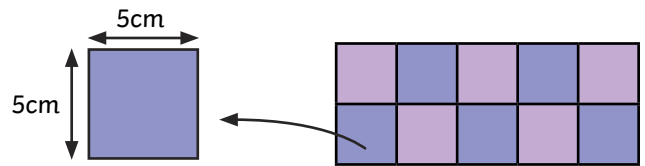


1) Calculate the area of the following rectangles:



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- 1) A rectangle has an area of  $75\text{cm}^2$ . The length is three times greater than the width. Calculate the length and width of the shape.

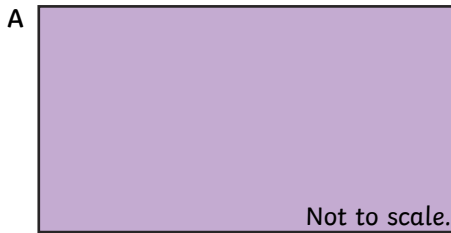


- 2) Investigate the statements below. Are they true or false? Draw two shapes for each question to prove your answer.
- a) If a square and a rectangle whose sides are not all equal have the same area, they will have the same perimeter.
  - b) A square can never have an area greater than  $9\text{cm}^2$  but less than  $16\text{cm}^2$ .
  - c) If I cut an  $80\text{cm}^2$  rectangle into 2 new rectangles, they will have a combined area of  $80\text{cm}^2$ .

- 3) Look at Romesh's statement below.



The area of shape A is  $54\text{cm}^2$ .  
The area of shape B is  $55\text{cm}^2$ .  
Therefore, the perimeter of shape B is greater.



Do you agree with Romesh? Explain your answer.

- 1) A rectangle has an area of  $75\text{cm}^2$ . The length is three times greater than the width. Calculate the length and width of the shape.

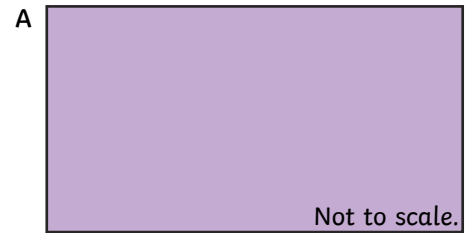


- 2) Investigate the statements below. Are they true or false? Draw two shapes for each question to prove your answer.
- a) If a square and a rectangle whose sides are not all equal have the same area, they will have the same perimeter.
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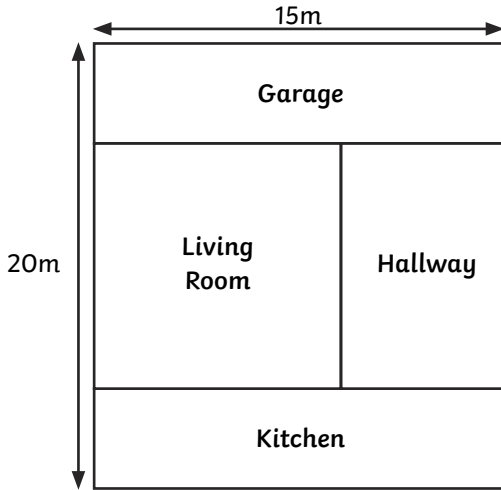


Do you agree with Romesh? Explain your answer.

1) Here is the layout of one floor of a house not drawn to scale. Use the clues below to work out the area of each room and the total area of this floor of the house.



- The garage and the kitchen are identical rectangles.
- The whole house is 20m long and 15m wide.
- The garage has walls of 15m and 4m.
- The living room is a square.

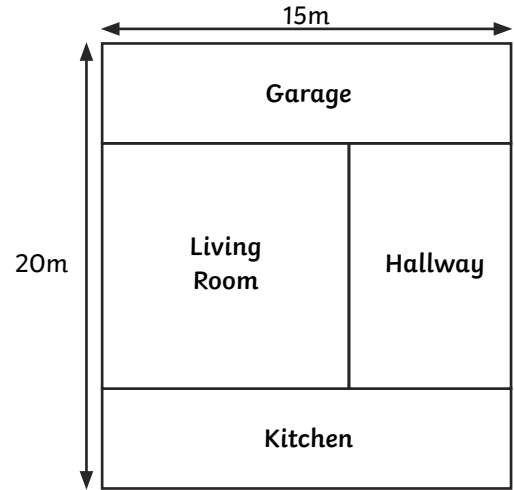


2) Investigate a different way of dividing up the house into four rooms. The length and width of the whole house and its total area should be the same as in question 1. Write some clues for a friend to solve.

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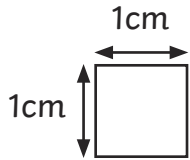
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- The garage has walls of 15m and 4m.
- The living room is a square.



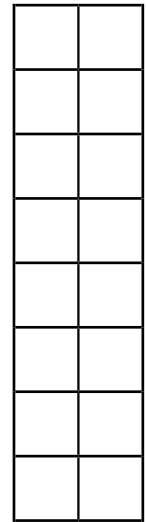
2) Investigate a different way of dividing up the house into four rooms. The length and width of the whole house and its total area should be the same as in question 1. Write some clues for a friend to solve.

# Using Multiplication to Calculate Area

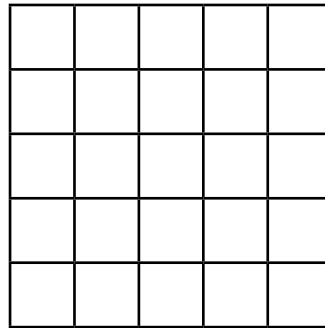
To calculate the area of rectangles and squares.



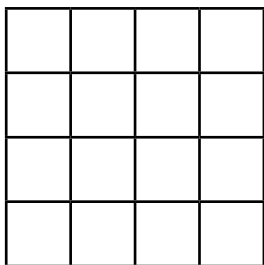
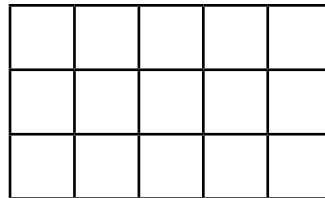
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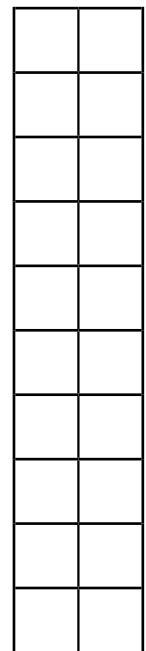


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Measurement | Area of Rectangles and Squares

To calculate the area of rectangles and squares.		
I can multiply length by width to calculate area.		
I can record area in standard units (square centimetres and square metres).		

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