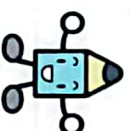
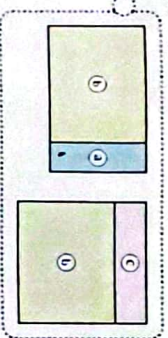


# 7 Area



? Which flowerbed is the largest?

1 is the smallest.



Which is larger, 2 or 3?

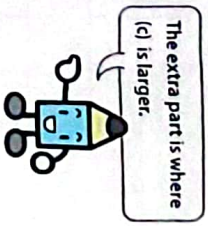
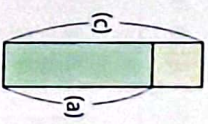
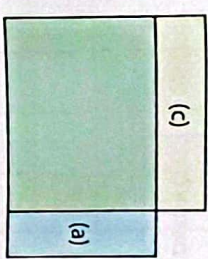
Well, the lengths of the edges around 2 and 3 are both 16 blocks...



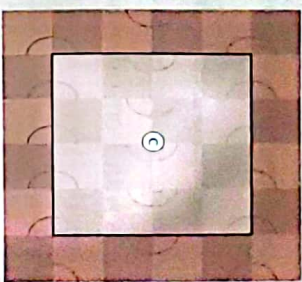
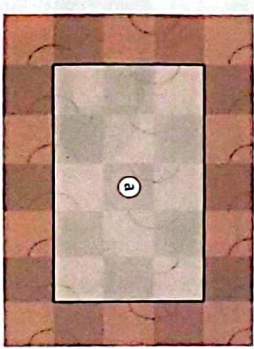
Trace the rectangular and square shapes of flowerbeds 1 and 3 on the previous page and compare them to see which has more space.

Trace the rectangular and square shapes of flowerbeds 1 and 3 on the previous page and compare them to see which has more space.

A Overlap and compare.



B Compare by looking at how many squares of pavement can fit in the flowerbeds.



3 is larger than 1 by one square of pavement.



We can probably express the size using numbers.



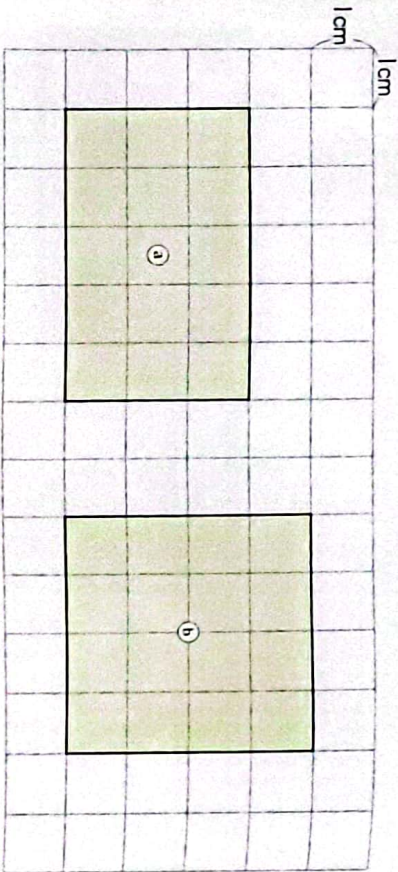
Let's learn how to express and figure out the size.



# 1 Area

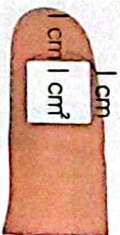
## Units of space

- 1 One mark on the grid below is equal to 1 cm. Which is bigger, ① or ②? Also, by how many?



Compare the number of squares with 1-cm sides.

The word **area** is used to describe space. Area is expressed in terms of the number of squares with 1-cm sides there are.



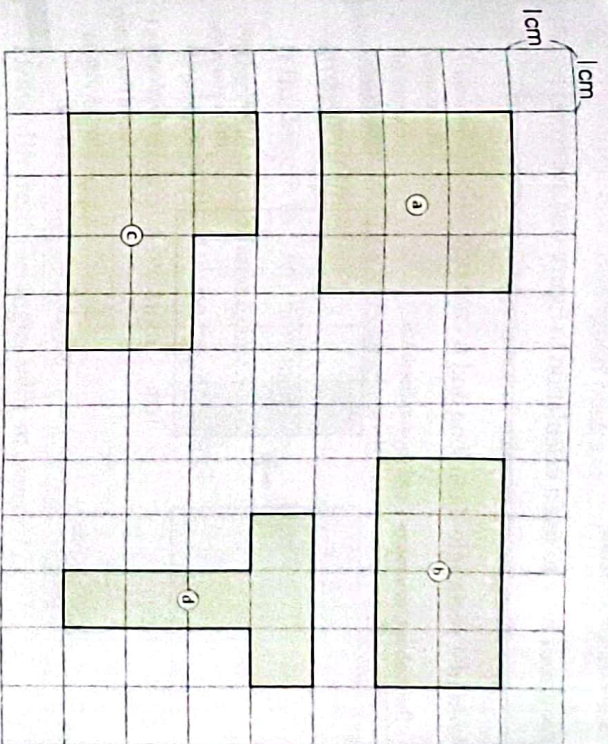
The area of a square with 1-cm sides is 1 cm<sup>2</sup> (1 square centimeter). cm<sup>2</sup> is a unit of area.

cm<sup>2</sup> cm<sup>2</sup>

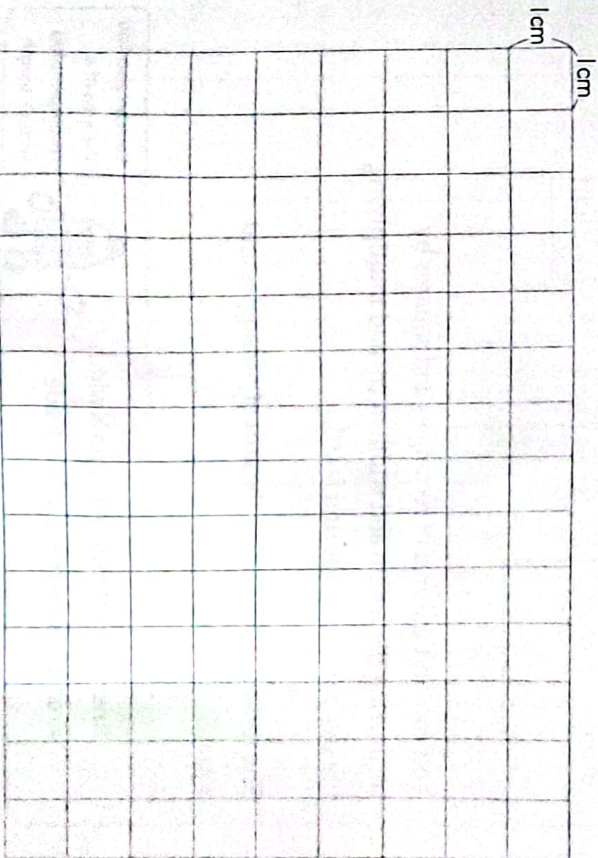
The area of ① is  1 cm<sup>2</sup> squares,  cm<sup>2</sup>, and the area of ② is  cm<sup>2</sup>.

is bigger than  by  cm<sup>2</sup>.

- 2 What is the area of each of the shapes below in cm<sup>2</sup>?



- 3 Draw various shapes with an area of 4 cm<sup>2</sup>.



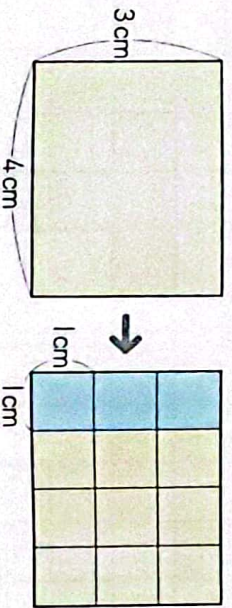


## Formulas for area

1 Think about how to use a calculation to figure out area.

A Area of a rectangle 3 cm long and 4 cm wide

Think about how many 1-cm<sup>2</sup> squares there are.



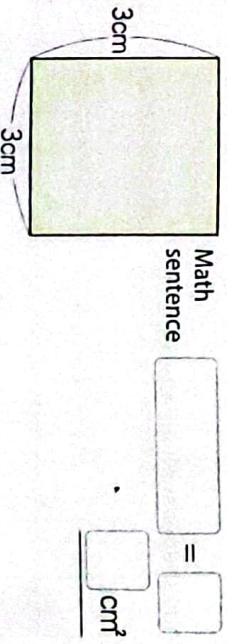
First step  
There are 4  
columns of  
3 squares stacked  
vertically, so...

Math  
sentence  $\square \times \square = \square$   $\square$  cm<sup>2</sup>

Review  
If I go back and  
think about the  
meaning of  
multiplication, I  
found the answer  
by calculating  
 $3 \times 4$ .

Go back

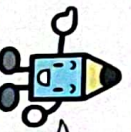
B Area of a square with 3-cm sides



You can find the area of rectangles and squares by measuring the length and width in cm and multiplying the two numbers. The unit is cm<sup>2</sup>.

The formulas for finding the area of rectangles and squares are below.

Area of a rectangle = length  $\times$  width  
Area of a square = side  $\times$  side



You can also find  
the area of a  
rectangle using  
width  $\times$  length.

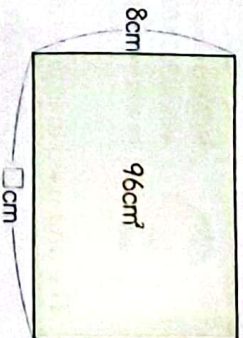
2 Use a formula to find the area.

A The area of a rectangular postcard 15 cm long and 10 cm wide

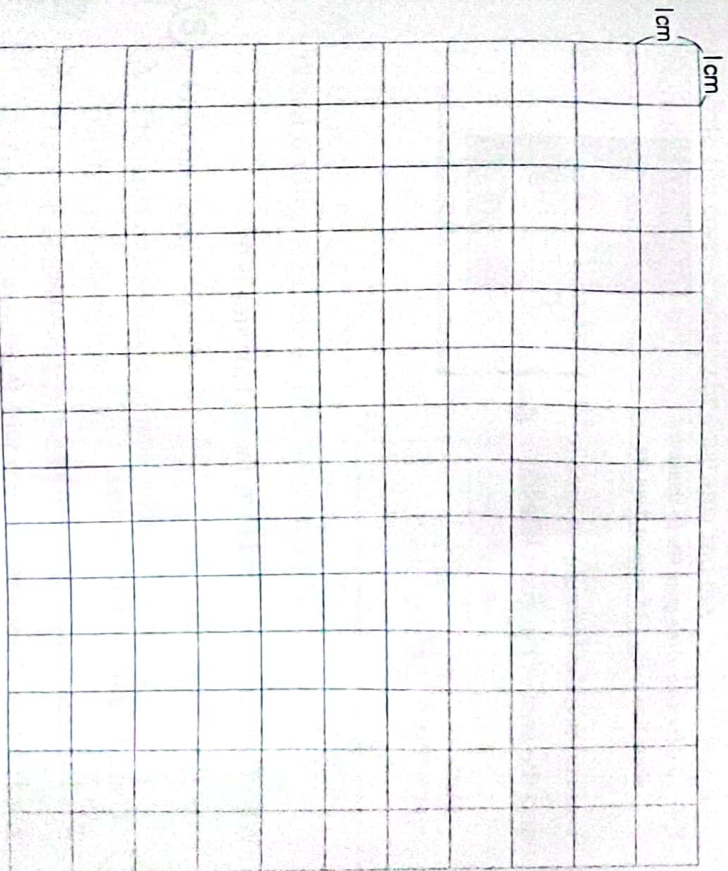
B The area of a square piece of colored paper with 13-cm sides

3 You want to draw a rectangle with an area of 96 cm<sup>2</sup>.

If the length is 8 cm, how many cm does the width have to be?  
Find the answer using the formula for the area of a rectangle.



4 Draw different rectangles with an area of 12 cm<sup>2</sup>.





## Square meters

- 1 There is a giant rectangular kite 7 m long and 5 m wide.

Find the area of the kite.



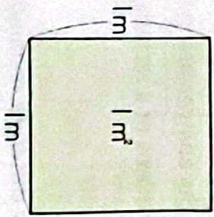
It's 700 cm long and 500 cm wide, so  $700 \times 500$  is going to be a big number.



Giant Shiron kite (Nigata prefecture)

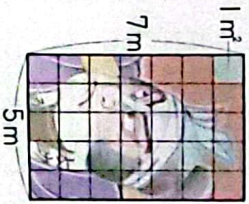
The unit used to express areas like this is the area of a square with 1-m sides.

Area of a square with 1-m sides  
1 m<sup>2</sup> (1 square meter)



Find the area of the giant kite by thinking about how many 1-m<sup>2</sup> squares there are.

You can use the formula for area to find the area of the giant kite too.



Math sentence  $\square = \square$

$\square$  m<sup>2</sup>

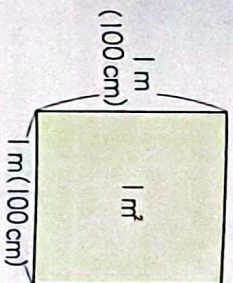
When length is measured in m, the unit for area is m<sup>2</sup>.

- 2 Use a formula to find the area.

- A The area of classroom 9 m long and 7 m wide  
B The area of a square sandbox with 8-m sides

- 3 How many cm<sup>2</sup> is 1 m<sup>2</sup>?

Think about the fact that 1 side of a square with a 1-m<sup>2</sup> area is 100 cm.



1 m (100 cm)

$100 \times 100 = \square$

1 m<sup>2</sup> =  $\square$  cm<sup>2</sup>

First step  
1 m = 100 cm,  
so...

- 4 A mistake was made when finding the area of a 150-cm long and 4-m wide bulletin board in ③ below.



Find the mistake and explain what happened.  
Write the correct way to find the area and the correct answer in ⑤.

③  $150 \times 4 = 600$   
 $600 \text{ m}^2$

→

⑤  $4 \text{ m} = \square \text{ cm}$   
 $150 \times \square = \square$   
 $\square \text{ cm}^2 = \square \text{ m}^2$

When finding area, the units of length must match.

- 5 Find the area.

- A The area of a rectangular table with a width of 50 cm and a length of 2 m  
B The area of a rectangular wall with a width of 250 cm and a height of 4 m



**First step:**  
It's easy to find the area if the shapes are squares or rectangles.



### 3 Large area

#### Square kilometers

- Find the area of a rectangular piece of land that runs 2 km north-south and 4 km east-west.



It would be nice if we had a unit for measuring area that is larger than  $\text{m}^2$ .

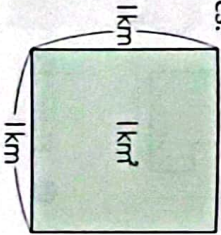


The unit used to express large areas of land like towns and prefectures is the area of a square with 1-km sides.

Area of a square with 1-km sides  
1  $\text{km}^2$  (1 square kilometer)

The area of this piece of land is

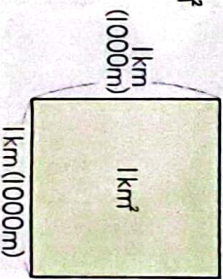
Math sentence  $\square = \square$   $\square \text{ km}^2$



- How many  $\text{m}^2$  is 1  $\text{km}^2$ ?

$$1000 \times 1000 = \square$$

$$1 \text{ km}^2 = \square \text{ m}^2$$



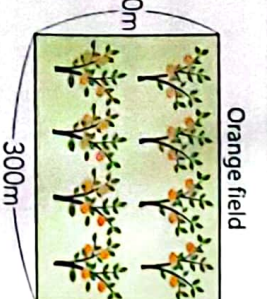
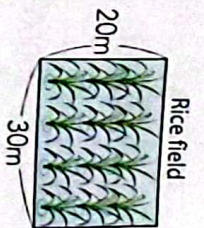
First step  
1 km = 1000 m  
so...

Go back

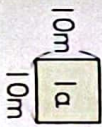
- Find the area of a rectangular piece of land that runs 3 km east-west and 12 km north-south.

### Ares and hectares

- Find the area of the rectangular rice field and orange field on the right.



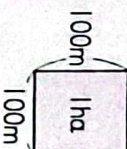
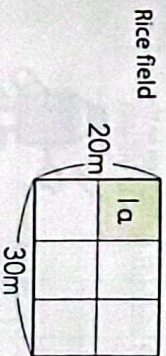
The unit used to express areas of land like rice or orange fields is the area of a square with 10-m or 100-m sides.



a a

1 a (1 are)

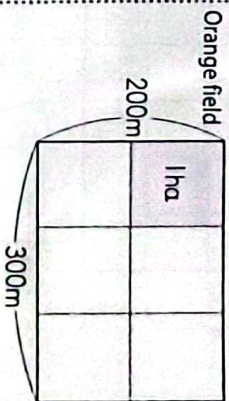
1 a =  $\square \text{ m}^2$



ha ha

1 ha (1 hectare)

1 ha =  $\square \text{ m}^2$



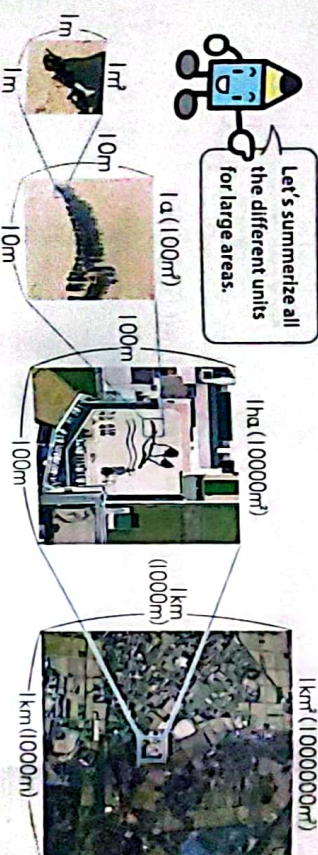
$$2 \times 3 = \square \text{ a}$$

$$2 \times 3 = \square \text{ ha}$$

- Draw a 1-a square on the athletic field.



Let's summarize all the different units for large areas.







1 Fill in the missing number or word.

- A Area of a rectangle =  $\square \times \square$
- B  $1 \text{ m}^2 = \square \text{ cm}^2$
- C  $20000 \text{ cm}^2 = \square \text{ m}^2$
- D  $1 \text{ km}^2 = \square \text{ m}^2$
- E  $3a = \square \text{ m}^2$

Page 86

Page 89

Page 92

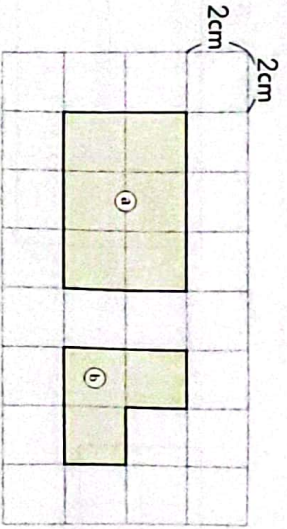
Page 93

2 Find the area.

- A The area of a rectangle 40 cm long and 60 cm wide
- B The area of a square with 25-cm sides

Page 86

3 Find the area.



Make sure you pay attention to the size of the grid.

Page 84, 85

4 Connect the dots.

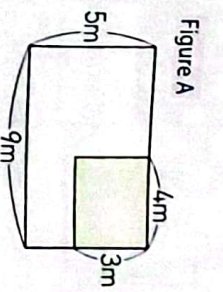
- A Area of a pool • 3000  $\text{cm}^2$
- B Area of a desk • 220  $\text{km}^2$
- C Area of Osaka city • 250  $\text{m}^2$

5 Which of the following has an area of about 500  $\text{cm}^2$ ?

- Textbook cover
- Newspaper
- Postcard
- Classroom

6 There is a flowerbed shaped like Figure A, with a length of 5 m and a width of 9 m.

You want to plant flowers in the white area of the flowerbed.



A What math sentences can you use to find the area of the part where you will plant flowers?

- a  $5 \times 9 + 3 \times 4$
- b  $5 \times 9 - 3 \times 4$
- c  $5 \times 3 - 3 \times 4$
- d  $5 \times 5 + 3 \times 4$

B The area of the part with flowers will be the same as in Figure A even if it is shaped like Figure B, Figure C, Figure D, or Figure E below. Use words, math sentences, or figures to explain why this is true.

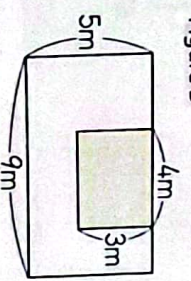


Figure B

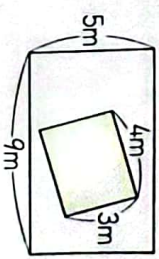


Figure C

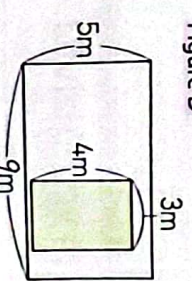


Figure D

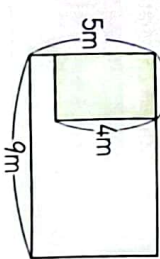


Figure E

Write in your Math diary.



# Review

- ★ 1 ①  $33 \times 2$  ②  $17 \times 6$  ③  $46 \times 4$  ④  $68 \times 5$

- ★ 2 ①  $0.06 + 0.02$  ②  $0.62 + 0.2$  ③  $0.71 + 0.09$   
 ④  $8.27 + 3.92$  ⑤  $4.75 + 1.3$  ⑥  $7.92 + 3.08$   
 ⑦  $0.08 - 0.03$  ⑧  $0.67 - 0.02$  ⑨  $0.73 - 0.6$   
 ⑩  $5.26 - 4.86$  ⑪  $3.72 - 1.7$  ⑫  $7 - 4.86$

## Warm-up

Step 1

Do the vertical calculation for  $252 \div 6$ .  
 Fill in  with numerals and  with words  
 selected from below.

$$\begin{array}{r} 6 \overline{)252} \\ \underline{24} \phantom{0} \\ 12 \phantom{0} \\ \underline{12} \\ 0 \end{array}$$

$$\begin{array}{r} 42 \\ 6 \overline{)252} \\ \underline{24} \phantom{0} \\ 12 \phantom{0} \\ \underline{12} \\ 0 \end{array}$$

At which place should you start putting the quotient on top?

☐ cannot be divided by 6.

Divide 25  $\div$  6 and  the .  
 6 by  and get 24.  
 24 from 25 and get 1.

2  and get 12.  
 Divide   $\div$  6 and  2 .

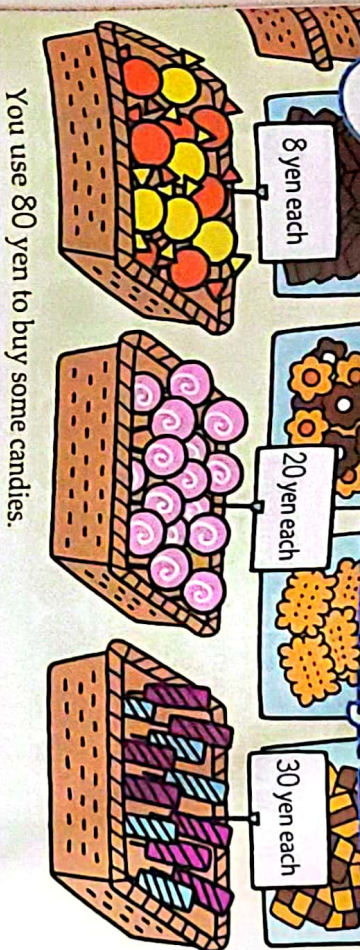
Bring...down Put...on top Subtract Multiply

Step 2

Do the vertical calculation.

- ①  $54 \div 3$  ②  $48 \div 2$  ③  $510 \div 6$   
 ④  $94 \div 7$  ⑤  $347 \div 4$  ⑥  $415 \div 8$

## 8 Vertical division with two-digit divisors



? How many 8-yen candies can you buy?

Math sentence  =  candies

? How many candies below can you buy?

20-yen candies

Math sentence

30-yen candies

Math sentence

We're trying to find out how many we can buy, so we need to divide.



Let's figure out how to do calculations where we divide with a two-digit divisor.

## 1 Division by multiples of ten

1 Think about how to calculate  $80 \div 20$  and  $80 \div 30$ .

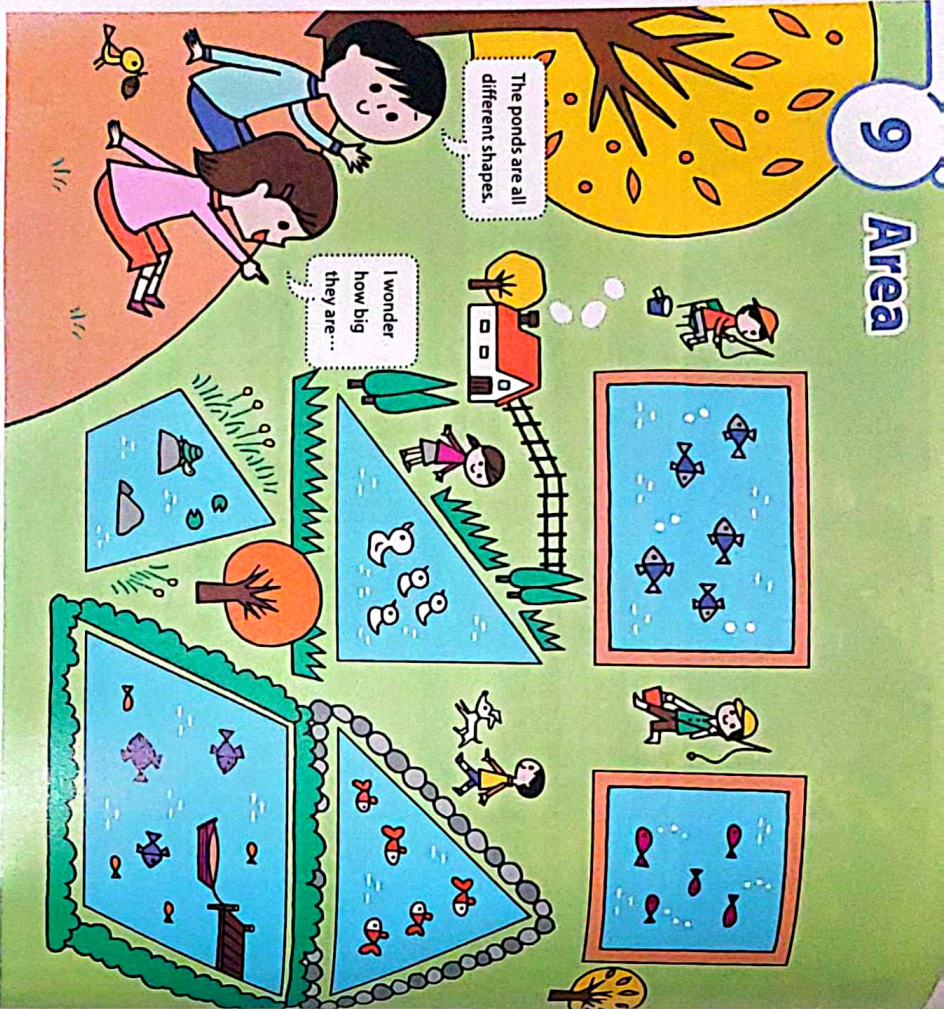
A  $80 \div 20$

B Think about how to calculate using A.

First step  
 It would be easy  
 if it were  $8 \div 2$   
 or  $8 \div 3$ ...



# 9 Area



? What is the area in  $\text{cm}^2$  of rectangle ③ and square ⑤ on page 3?

Area of rectangle ③

$$\square = \square \text{ cm}^2$$

Area of square ⑤

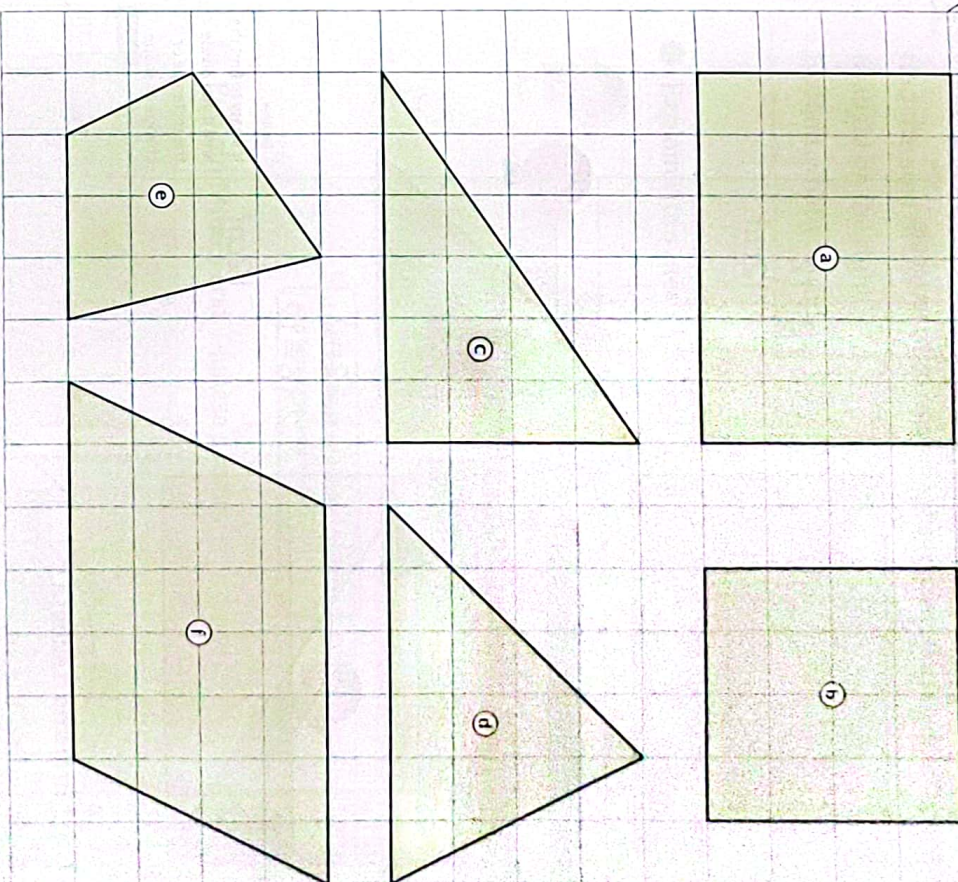
$$\square = \square \text{ cm}^2$$

I wonder how we can find the area of other shapes...



Think about how to find the areas of triangles and squares.

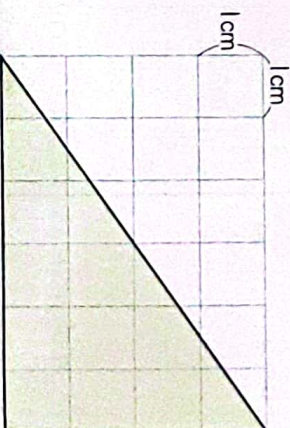
1 cm



## 1 Area of triangles

1 Think about how to find the area of right triangle ③.

Use the formula for the area of a rectangle.

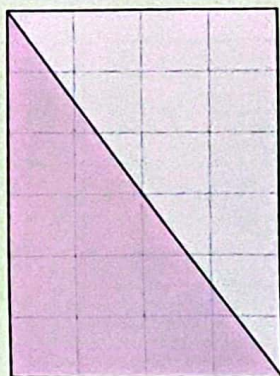


First step  
We can find the areas of rectangles or squares easily, but...



### Mirai's idea and explanation

We can find the area by taking half of the area of the rectangle.

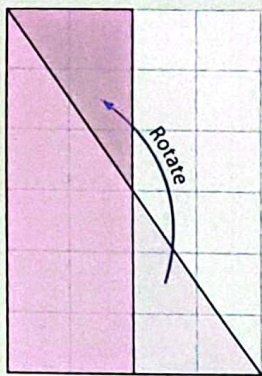


$$4 \times 6 \div 2 = 12$$

$$\underline{12 \text{ cm}^2}$$

### Tsubasa's idea and explanation

We can find the area by changing the triangle into a rectangle 2 cm long and 6 cm wide.



$$4 \div 2 = 2$$

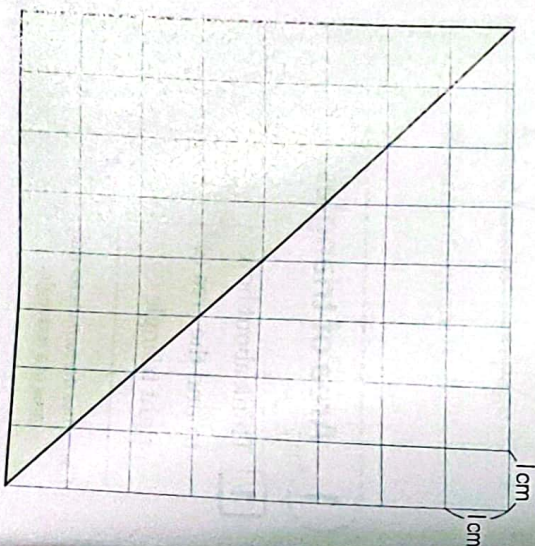
$$2 \times 6 = 12$$

$$\underline{12 \text{ cm}^2}$$

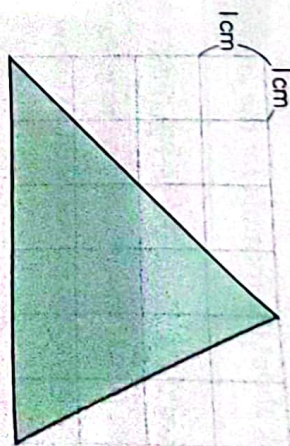
Review  
It's easy to find the area if you divide the rectangle or change its shape.

It's easy

### 2 Use Mirai and Tsubasa's ideas to find the area of the right triangle on the right.

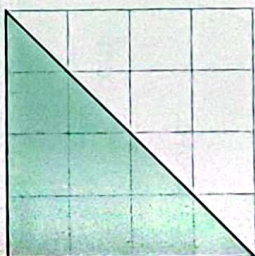


### 3 Think about how to find the area of the triangle on the right. Explain what you did.

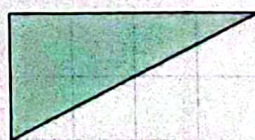


First step...  
It's easy to find the area of certain shapes.

### 4 Explain Aoi's idea.



and



$$4 \times 4 \div 2 = 8$$

$$4 \times 2 \div 2 = 4$$

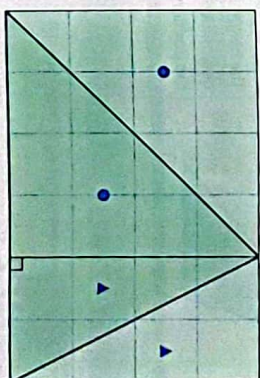
$$8 + 4 = 12$$

$$\underline{12 \text{ cm}^2}$$

I split the shape into 2 right triangles and found the area of each.



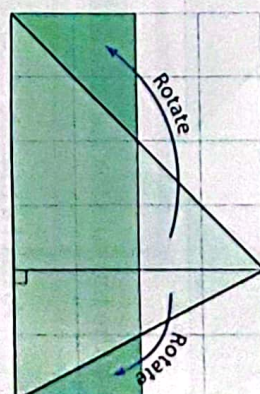
### 5 Explain Mirai's and Tsubasa's ideas.



$$4 \times 6 = 24$$

$$24 \div 2 = 12$$

$$\underline{12 \text{ cm}^2}$$



$$4 \div 2 = 2$$

$$2 \times 6 = 12$$

$$\underline{12 \text{ cm}^2}$$



No matter which idea you use, the area of a triangle is always half the area of a rectangle.

Review  
We found the area by going back to right triangles and rectangles.

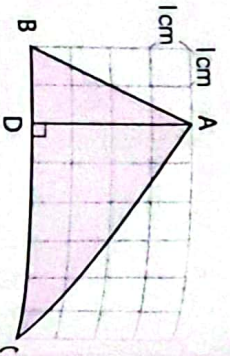
It's easy



4 Think about the formula for the area of a triangle.

A If we think about the fact that the area is half the area of a rectangle, which lengths do we need to know in the triangle on the right?

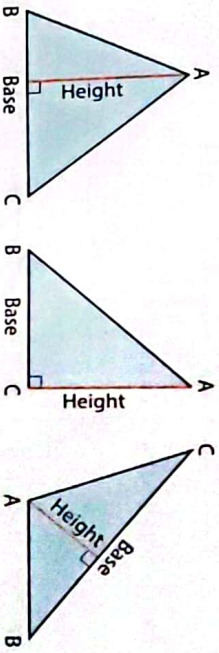
BC =  cm AD =  cm



B Calculate to find the area of the triangle above.

$$8 \times 4 \div 2 = \boxed{\phantom{00}} \text{ cm}^2$$

When side BC is the base in triangle ABC, the height is the length of the perpendicular line that extends from vertex A to base BC.

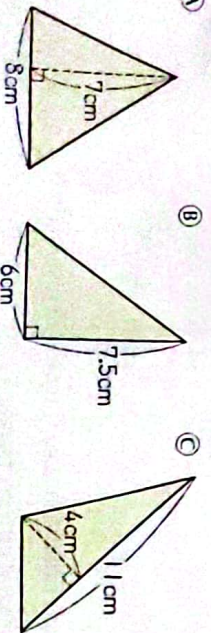


Review  
The height is determined by the position of the base.

This is the formula for the area of a triangle.

$$\text{Area of a triangle} = \text{Base} \times \text{Height} \div 2$$

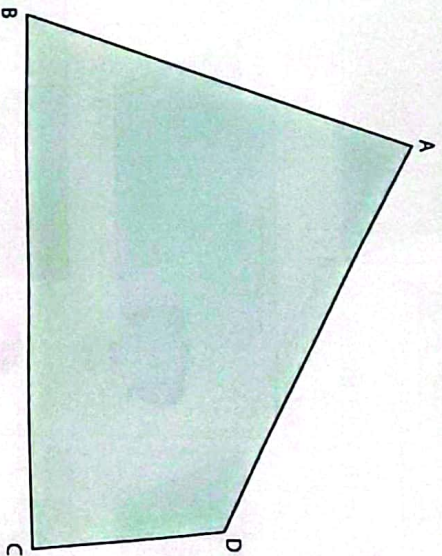
5 Find the areas of the following triangles.



Expand  
If we use the formula for the area of triangles...

Using the formula for area

1 Figure out a way to find the area of the quadrilateral below.

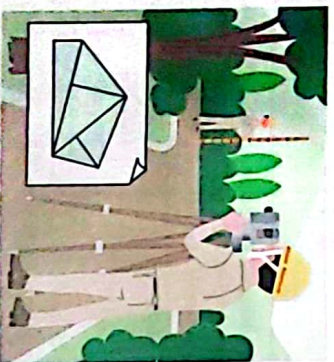


Mark the parts of the figure that you need to measure.

We can find the area of a quadrilateral by splitting it into 2 triangles using a diagonal.

Finding the areas of various shapes

Surveyors use figures split into triangles like the one on the lower right to find the area of parks or other pieces of land. This is how triangles are used to find the area of shapes enclosed with many straight lines.



First step  
If we think about shapes that we can easily find the area of...

Review  
The easiest way to do it is to split the quadrilateral into 2 triangles.

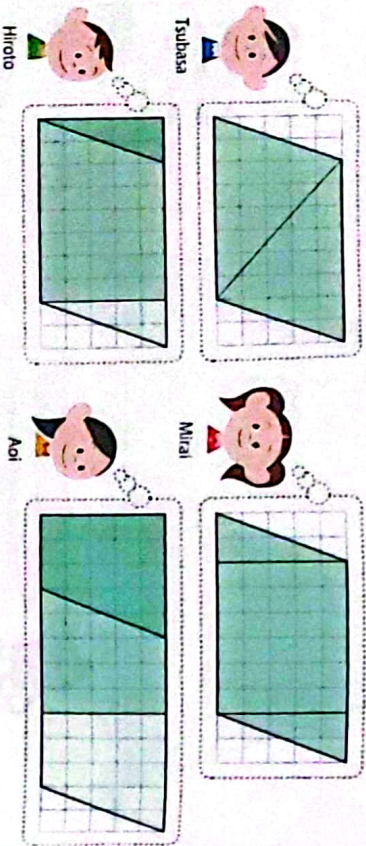
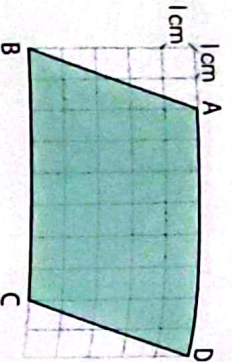
Math diary  
The formula for the area of a triangle is useful because we can use it to find the area of quadrilaterals too. I want to try to find the area of pentagons too.



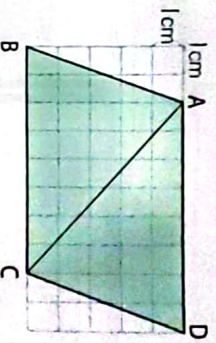
## 2 Area of parallelograms

- 1 You have a parallelogram like the one on the right.

- A Think of various ways to find the area.



- B Talk with each other about how you found the area.



$$8 \times 5 \div 2 = 20$$

$$20 \times 2 = 40$$

40 cm<sup>2</sup>



The base of triangle ABC is 8cm and the height is 5cm, so the area is  $8 \times 5 \div 2 = 20$ , or  $20\text{cm}^2$ . The area of the parallelogram is twice that, so  $20 \times 2 = 40$ , or  $40\text{cm}^2$ .

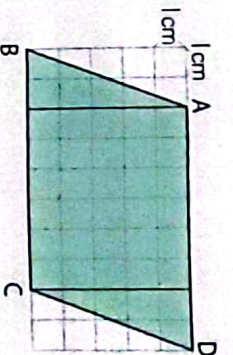
I have a question for you, Tsubasa. Why did you split it into 2 triangles?



Because we learned the formula for the area of a triangle. The 2 triangles we get when we split a parallelogram with a diagonal are congruent, so I thought we could easily find the area of the parallelogram if we doubled the area of triangle ABC.



My idea was to split the parallelogram into 2 right triangles and a rectangle. First I found the area of the right triangles, and then I found the area of the rectangle. When I added them together, I got  $40\text{cm}^2$ .



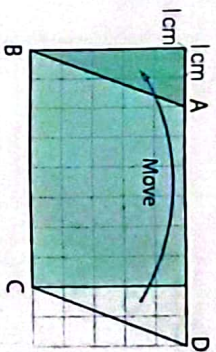
$$2 \times 5 \div 2 = 5$$

$$5 \times 2 = 10$$

$$5 \times 6 = 30$$

$$10 + 30 = 40$$

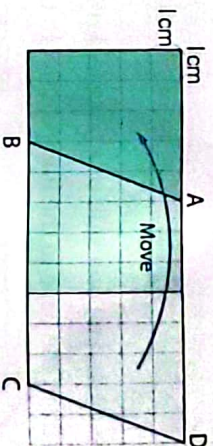
40 cm<sup>2</sup>



You can easily get the answer without splitting the shape into right triangles and a rectangle like Mirai did. Just move one of the right triangles over like this and you can find the area with  $8 \times 5 = 40$ .



I'll add to what Hiroto said. You can also make a rectangle by moving a trapezoid. That lets you find the answer using the formula for the area of a rectangle just like he did.



- C Write the interesting parts of your discussion in your notebook.

I thought splitting the parallelogram into triangles would be difficult because you would have to find the area of both of them. But when Tsubasa explained that a parallelogram could be split into congruent triangles using a diagonal, I realized that you could just double the area of one of the triangles.



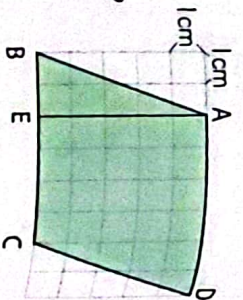
I realized that instead of splitting up a parallelogram, you could also make it into a rectangle and use an area formula that we already know. Listening to Hiroto's and Aoi's explanations gave me some new ideas.



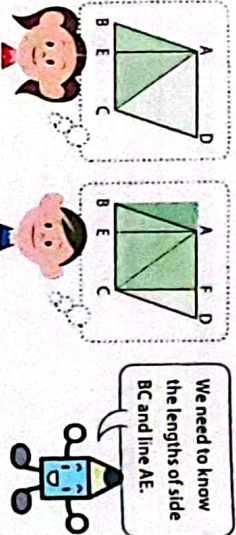


## 2 Think about the formula for the area of a parallelogram.

- Ⓐ If we think about finding the area using triangles and rectangles, which lengths do we need to know in the parallelogram on the right?



We need to know the lengths of side BC and line AE.

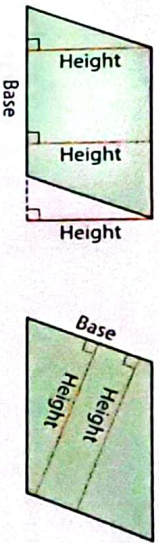


BC =  cm, AE =  cm

- Ⓑ Calculate to find the area of the parallelogram.

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

When we designate one side of a parallelogram as the base, the distance from the base to the line parallel to the base is the height.

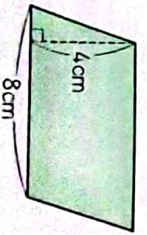


This is the formula for the area of a parallelogram.

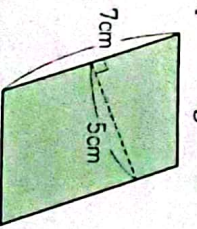
**Area of a parallelogram = Base  $\times$  Height**

- 3 Find the areas of the following parallelograms.

Ⓐ



Ⓑ

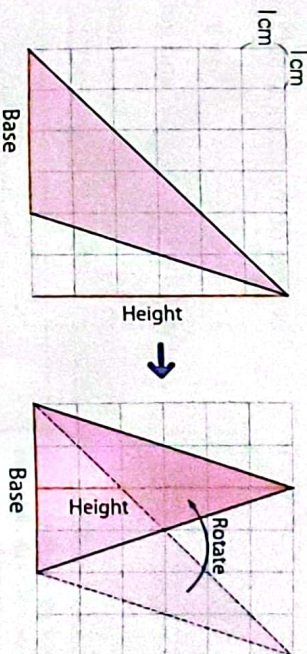


## 3 Area of various triangles and quadrilaterals

### Using the formulas for area

- 1 See whether you can use the formulas for area for the triangles and parallelograms below.

- Ⓐ Triangle

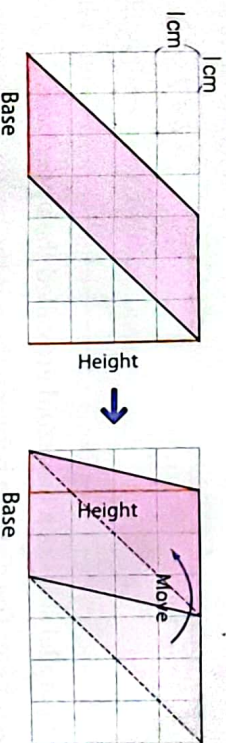


Use the 'Triangle Transformation Machine' on page 117 to check.

$\frac{\text{Base}}{4} \times \frac{\text{Height}}{6} \div 2 = 12$

$12 \text{ cm}^2$

- Ⓑ Parallelogram



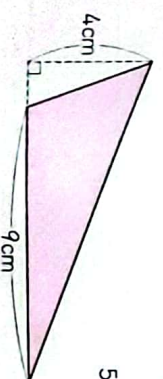
$\frac{\text{Base}}{3} \times \frac{\text{Height}}{4} = 12$

$12 \text{ cm}^2$

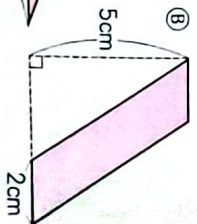
- 2 Find the areas of

Ⓐ

the triangle and parallelogram on the right.



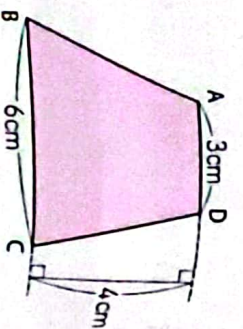
Ⓑ





## Area of trapezoids

- 1 Think about how to find the area of the trapezoid on the right.



Think about using the area formulas for a triangle and a parallelogram.

My idea was to split it into 2 triangles.

The area of the triangle ABD is  $3 \times 4 \div 2 = 6$

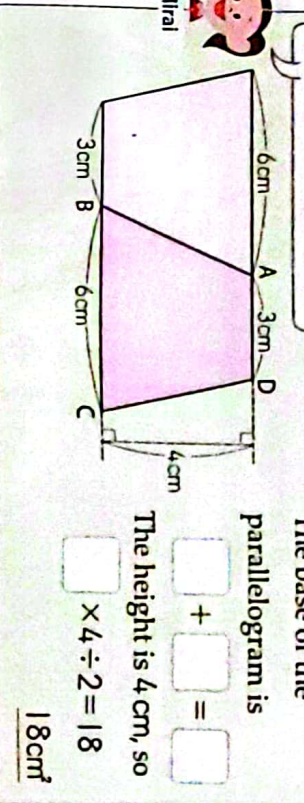
The area of the triangle BCD is  $\square = \square$

Add the two together and get  $6 + \square = 18$  18 cm<sup>2</sup>



Tsubasa

My idea was to use two same trapezoids and make a parallelogram.

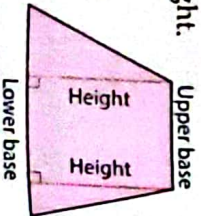
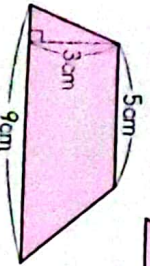


Mirai

The two parallel sides of a trapezoid are called the upper base and lower base. The distance between them is the height.

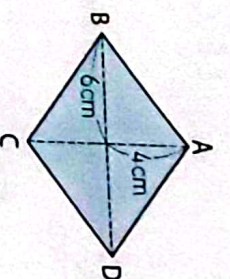
Area of a trapezoid = (Upper base + Lower base)  $\times$  Height  $\div 2$

- 2 Find the area of the trapezoid on the right.



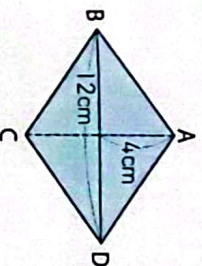
## Area of rhombuses

- 1 Think about how to find the area of the rhombus on the right.



Think about it using the area formulas for a triangle and a rectangle.

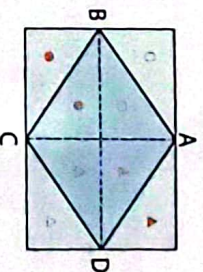
My idea was to split it into 2 triangles.



$$(12 \times 4 \div 2) \times 2 = 48$$

48 cm<sup>2</sup>

I thought about making it into a rectangle.



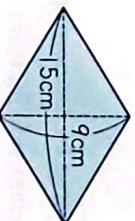
$$8 \times 12 \div 2 = 48$$

48 cm<sup>2</sup>

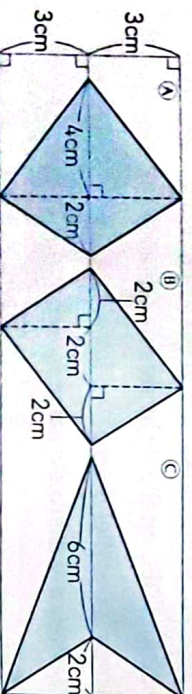
Area of a rhombus = Diagonal  $\times$  Diagonal  $\div 2$



- 2 Find the area of the rhombus on the right.



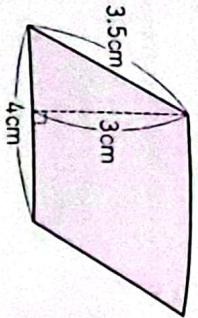
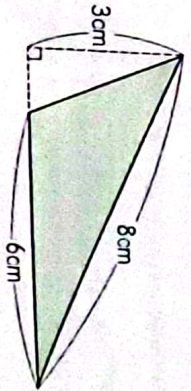
- 3 Find the areas of (A), (B), and (C) below.



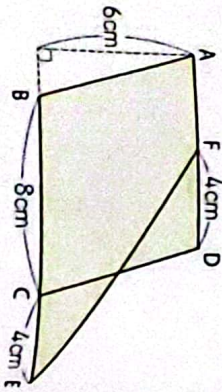
Math diary  
It's interesting that we can use the area formulas we learned to make more and more area formulas for new shapes.



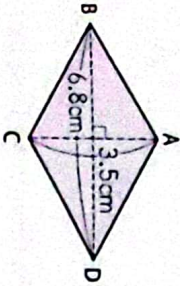
1 Find the areas of the triangle and the parallelogram below.



2 Compare the areas of parallelogram ABCD and trapezoid ABFE on the right.

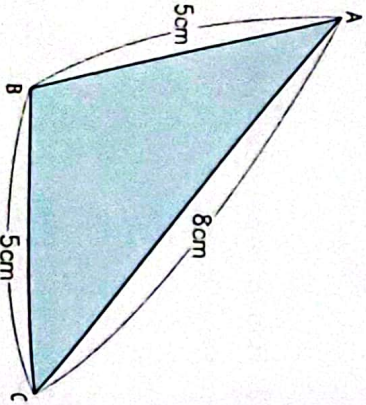


3 Find the area of the rhombus on the right.

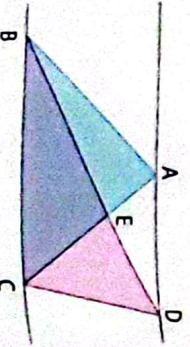


4 Use the following 2 methods to find the area of the triangle on the right.

- A Find the area by measuring the height when side BC is the base.
- B Find the area by measuring the height when side AC is the base.



5 Triangles ABE and DEC on the right are drawn between 2 parallel lines. Explain why their areas are the same.

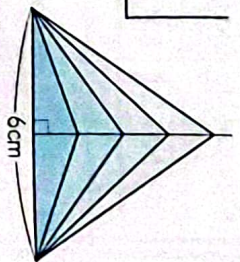


## 4 Problems of area

1 A triangle has a base of 6 cm. The height is increased from 1 cm to 2 cm, 3 cm, and so on.

A How much does the area increase every time the height is increased by 1 cm?

Height (cm)	1	2	3	4	5	6	7
Area (cm <sup>2</sup> )							



First step  
If we make a table to find out how it changes...

B When the height doubles, how many times does the area increase?  
What happens when the height triples, quadruples, and so on?

When the height of a triangle doubles, triples, and so on the area doubles, triples, and so on. Therefore, height and area are proportional.

C Write a math sentence to find the area of a triangle with a height of  $\triangle$  cm and an area of  $\bigcirc$  cm<sup>2</sup>.

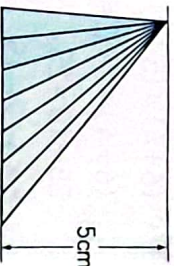
$$6 \times \square \div 2 = \square$$

D What is  $\bigcirc$  when  $\triangle$  is equal to 12?

2 The height of a triangle is 5 cm. The base is increased from 1 cm to 2 cm, 3 cm, and so on.

A How much does the area increase every time the base is increased by 1 cm?

B How does the area change when the base is doubled, tripled, and so on?



Review  
We can find the pattern if we look at the table horizontally and vertically.  
It's a table

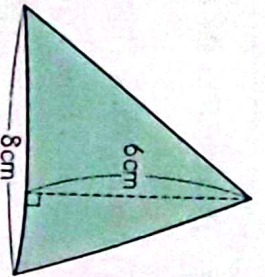


- 3 The triangle on the right has a base of 8 cm and a height of 6 cm. Various ideas were used to find the area.

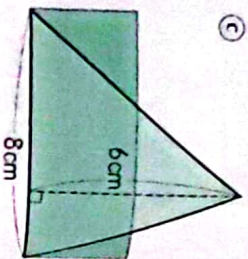
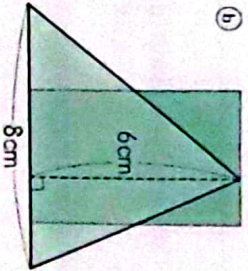
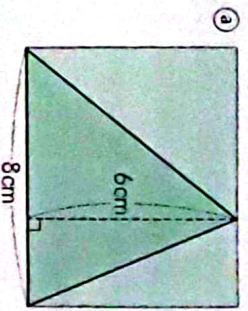
$$(8 \times 6) \div 2$$

$$8 \times (6 \div 2)$$

$$(8 \div 2) \times 6$$



- 4 Which of the 3 math sentences above correspond to the figures below?



First step  
I wonder what is  
being expressed  
inside the ( ).

- 8 Explain the reasoning for your answers in 4.

In  $(8 \times 6) \div 2$ , we're first calculating  $8 \times 6$  and then dividing by 2. This is the idea in figure a, where the area of a rectangle is split in half.



- 4 The area of the shaded portion in the figure on the right was found by expressing it in the math sentences below.

Explain what ideas were used to find the area.

a  $(6 + 4) \times (5 + 2) \div 2 = 35$

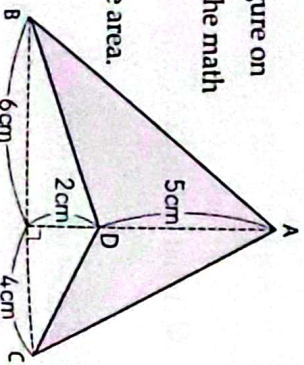
b  $(6 + 4) \times 2 \div 2 = 10$

c  $35 - 10 = 25$

d  $5 \times 6 \div 2 = 15$

e  $5 \times 4 \div 2 = 10$

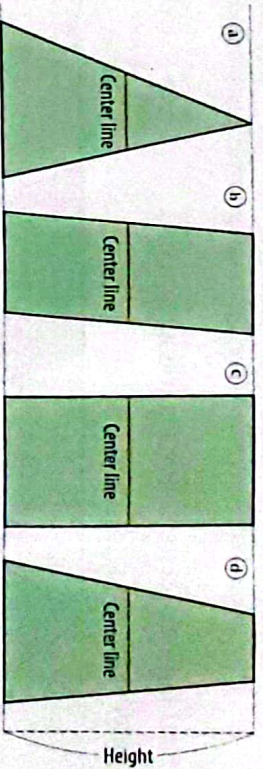
f  $15 + 10 = 25$



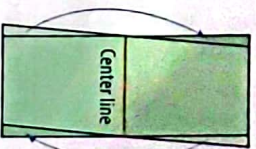
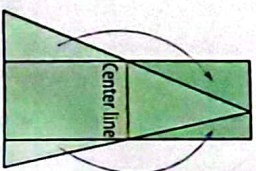
Main idea  
Explaining ideas using  
figures is fun because we  
can work with our friends  
to understand things better.

### Figuring out ways to find area

A center line is drawn in the middle of each figure parallel to the base. The center line is located at  $\frac{1}{2}$  the height of each shape.



We can use the length of the center line to find area.



Area of a triangle = Center line  $\times$  Height

Area of a parallelogram = Center line  $\times$  Height

We can use the formula below to find the area of shapes a through d above.

Area of a shape = Center line  $\times$  Height

Think about  
why this is true.





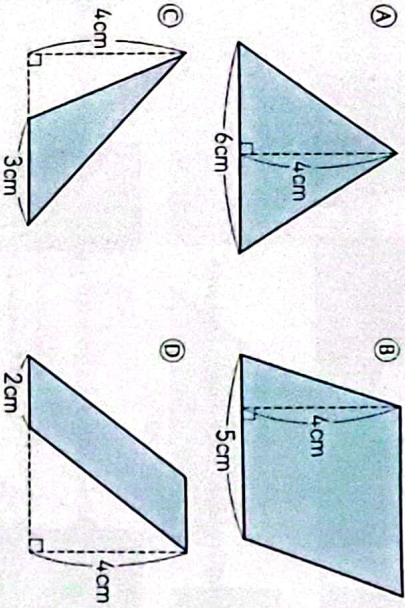


1 Fill in the missing words.

- A Area of a triangle =  $\square \times \square \div 2$   
 B Area of a parallelogram =  $\square \times \square$

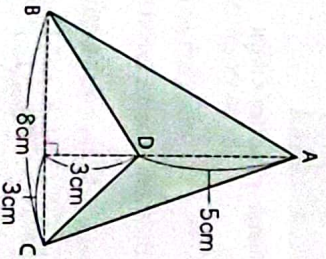
A Page 6  
 B Page 10

2 Find the areas of the following triangles and parallelograms.



A Page 6  
 B Page 10  
 C, D Page 11

3 Find the area of the shaded portion in the figure on the right. Explain what you did.



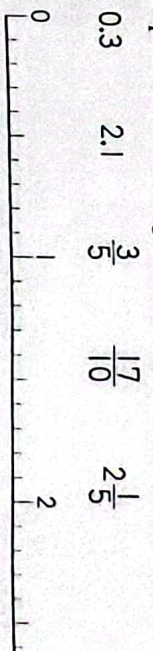
Page 16

4 Write in your Math diary.

1 Express the following quotients as fractions.

- A  $2 \div 5$  B  $4 \div 7$  C  $7 \div 9$  D  $9 \div 7$

2 Express the following numbers on the number line below.

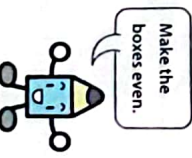
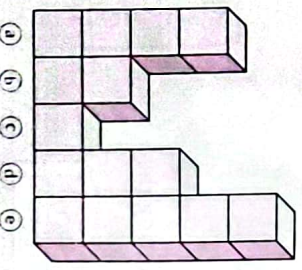


- 3
- |   |   |                                    |                               |
|---|---|------------------------------------|-------------------------------|
| ① $\frac{2}{3} + \frac{1}{5}$               | ② $\frac{1}{2} + \frac{5}{8}$               | ③ $\frac{11}{15} + \frac{1}{10}$   | ④ $\frac{5}{6} + \frac{7}{4}$ |
| ⑤ $\frac{3}{8} - \frac{1}{4}$               | ⑥ $\frac{5}{4} - \frac{5}{6}$               | ⑦ $\frac{7}{8} - \frac{3}{10}$     | ⑧ $\frac{3}{2} - \frac{1}{6}$ |
| ⑨ $\frac{1}{3} + \frac{1}{4} + \frac{1}{5}$ | ⑩ $\frac{3}{8} - \frac{1}{4} + \frac{1}{6}$ | ⑪ $1 + \frac{2}{5} - \frac{1}{15}$ |                               |
| ⑫ $\frac{2}{3} \times 4$                    | ⑬ $\frac{5}{8} \times 6$                    | ⑭ $\frac{1}{9} \div 2$             | ⑮ $\frac{4}{5} \div 8$        |

Warm-up

1 Identical boxes are stacked as shown below.

If the boxes are restacked so that they are the same height at a through e, how high will they be?



boxes high