

# Perimeter

Mr. Sanchos is making a picture frame.  
 What is the distance around all four sides of the picture?  
 The picture is 60 cm long and 50 cm wide.  
 $50\text{ cm} + 60\text{ cm} + 50\text{ cm} + 60\text{ cm} = 220\text{ cm}$

The distance around a figure is called the **perimeter**.  
 Add the lengths of all the sides to find the perimeter.



## EXERCISES

What is the perimeter of each figure?

1. 3 cm, 4 cm, 4 cm
2. 4 mm, 2 mm, 2 mm, 6 mm
3. 1 m, 2 m, 1 m, 1 m, 2 m, 1 m
4. 1.9 m, 1.9 m, 1.9 m, 1.9 m, 1.9 m
5. 3.9 km, 3.9 km, 7.2 km
6. 1.3 cm, 1.4 cm, 1.2 cm, 1.4 cm, 1.2 cm

7. 22 m, 2 m

Find the perimeter. (Measure the sides in centimetres.)

8. 3 cm, 2 cm
9. 1 cm, 1 cm, 2 cm, 1 cm, 1 cm, 1 cm

## PRACTICE

What is the perimeter of each figure?

1. 3 cm, 5 cm, 6 cm
2. 10 km, 9 km, 12 km, 9 km
3. 2.4 m, 3.2 m, 3.8 m
4. 1.8 cm, 1.8 cm, 2.4 cm, 1.7 cm, 1.1 cm
5. 7 m, 3.5 m
6. 5.2 km
7. 33 mm, 7 mm

Measure the sides in centimetres. Find the perimeter.

8. 1 cm, 3 cm, 1 cm, 1 cm, 2 cm, 1 cm, 6 cm
9. 5 cm, 2 cm

## USING CALCULATORS

Use a calculator to answer these questions.

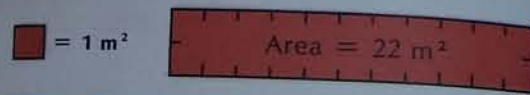
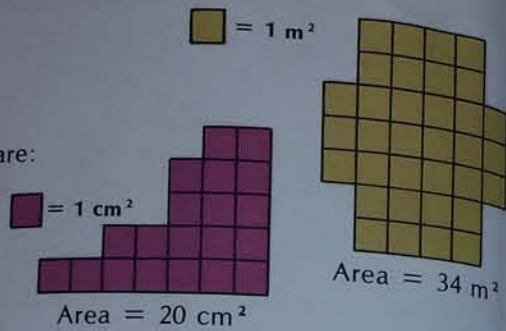
- What is the perimeter of Alberta?
- What is the perimeter of Saskatchewan?
- The perimeter of Manitoba is 3730 km. How long is the unmarked side?
- What is the perimeter of the three Prairie Provinces together as one section of the country?



# Area

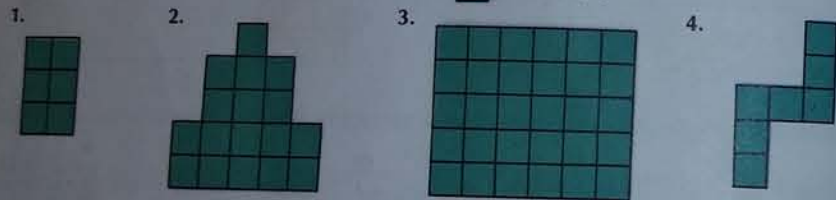
The number of square units on the surface of a figure is its area.

Some square units that can be used are:  
square centimetres ( $\text{cm}^2$ )  
square metres ( $\text{m}^2$ )

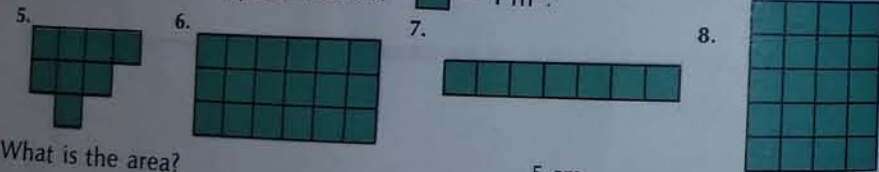


## EXERCISES

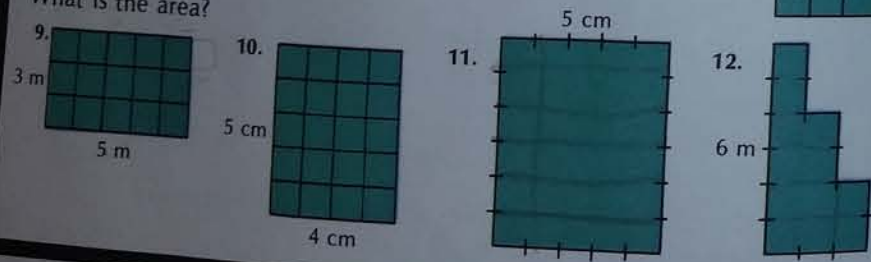
What is the area in square centimetres?  $\square = 1 \text{ cm}^2$ .



What is the area in square metres?  $\square = 1 \text{ m}^2$ .

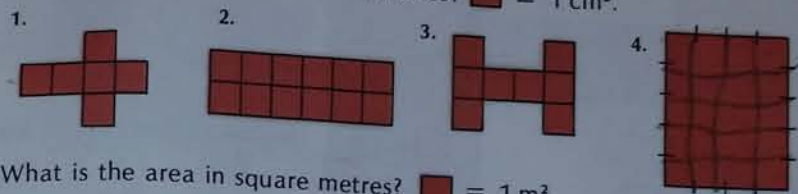


What is the area?

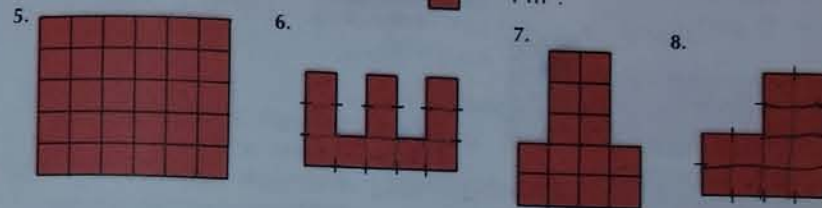


## PRACTICE

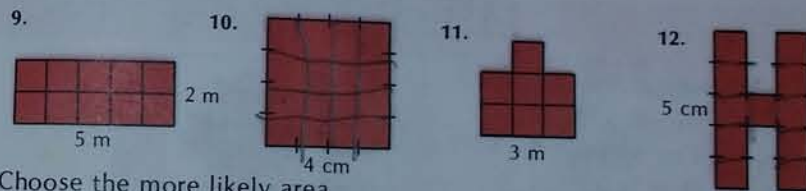
What is the area in square centimetres?  $\square = 1 \text{ cm}^2$ .



What is the area in square metres?  $\square = 1 \text{ m}^2$ .



What is the area?



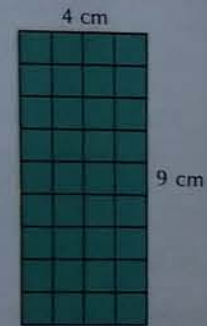
Choose the more likely area.

13. a record album cover:  $961 \text{ cm}^2$  or  $9 \text{ m}^2$
14. a dollar bill:  $108 \text{ m}^2$  or  $108 \text{ cm}^2$
15. a basketball court:  $364 \text{ m}^2$  or  $364 \text{ cm}^2$

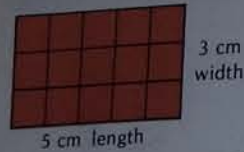
## Thirty-Six Squares

The drawing represents a rectangle that has an area of  $36 \text{ cm}^2$  and a perimeter of  $26 \text{ cm}$ .

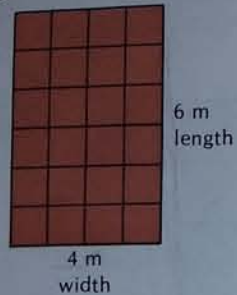
Draw five other rectangles with an area of  $36 \text{ cm}^2$ .  
What are the perimeters of these rectangles?  
Which has the smallest perimeter?



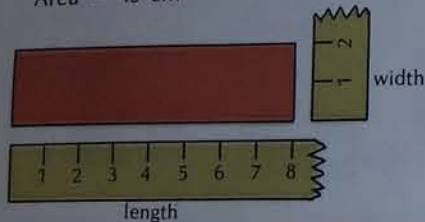
## Area of a Rectangle



Area = length  $\times$  width  
 Area = 5 cm  $\times$  3 cm  
 Area = 15 cm<sup>2</sup>



Area = length  $\times$  width  
 Area = 6 m  $\times$  4 m  
 Area = 24 m<sup>2</sup>

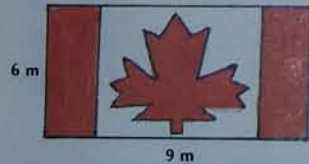


Area = length  $\times$  width  
 Area = 8 cm  $\times$  2 cm  
 Area = 16 cm<sup>2</sup>

### EXERCISES

What is the area of the rectangle?

1. Area = length  $\times$  width  
 Area = 4 m  $\times$  3 m  
 Area = 12 m<sup>2</sup>



2. Area = length  $\times$  width  
 Area = 80 cm  $\times$  50 cm  
 Area = 4000 cm<sup>2</sup>

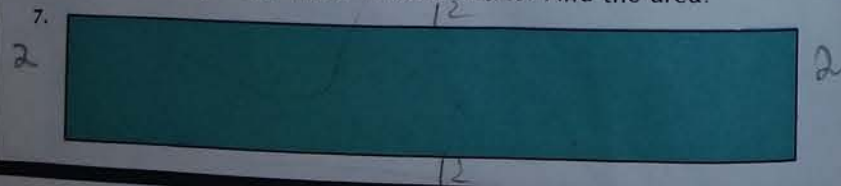
3. Area = length  $\times$  width  
 Area = 6 m  $\times$  9 m  
 Area = 54 m<sup>2</sup>

4. length = 16 cm  
 width = 10 cm  
 Area = 160 cm<sup>2</sup>

5. length = 24 m  
 width = 6 m  
 Area = 144 m<sup>2</sup>

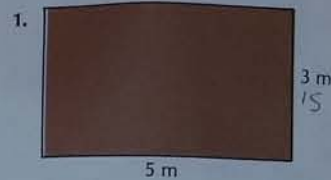
6. length = 35 m  
 width = 11 m  
 Area = 385 m<sup>2</sup>

Measure the length and width in centimetres. Find the area.



## PRACTICE

What is the area of the rectangle?



3. length = 50 m  
 width = 30 m

4. length = 19.5 cm  
 width = 8 cm

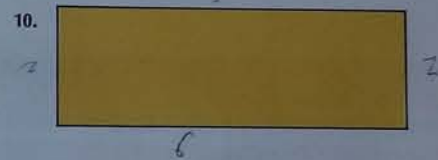
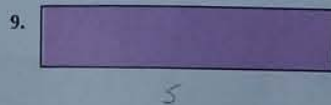
5. length = 16 m  
 width = 0.5 m

6. length = 37 cm  
 width = 28 cm

7. length = 8.5 m  
 width = 6 m

8. length = 7 cm  
 width = 55 cm

Measure the length and width in centimetres. Find the area.



11. A gym mat measures 6 m by 1.5 m. What is its area?

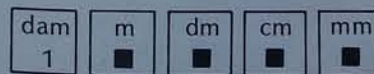
12. A rectangle has an area of 32 m<sup>2</sup>.  
 The width is 4 m. What is its length?

## Deca

"Deca" means ten. 10 m = 1 dam (decametre)

Copy and complete.

A. 1 dam is:



10 100dm 1000cm 10,000mm

B. 8 dam are:



80 800 8,000 80,000



A telephone pole is about 1 dam long.

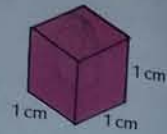
# Volume

The number of cubic units contained in a solid is its **volume**.

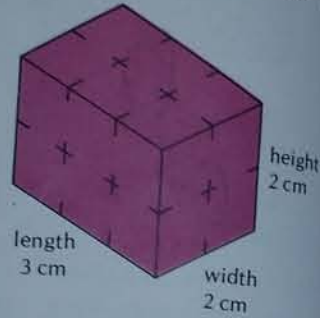
Some cubic units that can be used are:  
**cubic centimetres (cm<sup>3</sup>)**  
**cubic metres (m<sup>3</sup>)**

There are 3 × 2 cubes in each layer of the block. There are 2 layers.

Volume = length × width × height  
 Volume = 3 cm × 2 cm × 2 cm  
 Volume = 12 cm<sup>3</sup>



one cubic centimetre (1 cm<sup>3</sup>)



## EXERCISES

Find the volume of the block.

1.



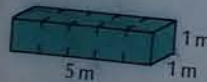
Volume = length × width × height  
 Volume = 3 cm × 1 cm × 2 cm  
 Volume = ■ cm<sup>3</sup>

2.



Volume = length × width × height  
 Volume = 3 m × 3 m × 1 m  
 Volume = ■ m<sup>3</sup>

3.



Volume = length × width × height  
 Volume = ■ × ■ × ■  
 Volume = ■

4.



Volume = length × width × height  
 Volume = ■ × ■ × ■  
 Volume = ■

## PRACTICE

Find the volume.

1.



Volume = length × width × height  
 Volume = ■ × ■ × ■  
 Volume = ■

2.

length = 5 cm  
 width = 3 cm  
 height = 9 cm

3.

length = 2 m  
 width = 9 m  
 height = 10 m

4.

length = 12 cm  
 width = 5 cm  
 height = 20 cm

5.

length = 8 m  
 width = 9 m  
 height = 6 m

6.

length = 5 cm  
 width = 10 cm  
 height = 15 cm

7.

length = 20 m  
 width = 30 m  
 height = 10 m

Solve.

- A shoe box is 30 cm long, 20 cm wide, and 15 cm high. What is its volume?
- A block with a volume of 36 cm<sup>3</sup> is 2 cm wide and 3 cm high. How long is the block?

## REVIEW

Complete.

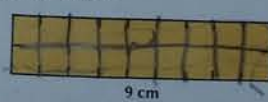
- 3 km = ■ m
- 90 mm = ■ cm
- 2 m = ■ cm

Solve.

- A rectangular city block is 150 m wide and 250 m long. What is its perimeter?

Find the area.

5.



6. length = 12 m  
 width = 9 m

Find the volume.

7.



8. length = 7 cm  
 width = 5 cm  
 height = 4 cm

## Mass

gram



1 cm<sup>3</sup> of water



Both have a mass of about 1 g.

kilogram



Both have a mass of 1 kg.  
1 kg = 1000 g



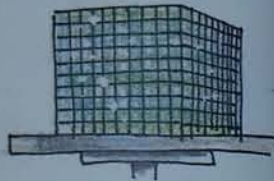
10 heavy football players

tonne

1 t = 1000 kg



1 m<sup>3</sup> of water



## EXERCISES

Would grams, kilograms, or tonnes be used to measure the mass?

1.



2.



3.



4.



5.



6.



What is the more likely mass?

7. five potatoes: 1 kg or 5 kg
8. a table telephone: 14 kg or 1400 g
9. an elephant: 400 kg or 4 t
10. a large apple: 230 g or 2 kg
11. five paper clips: 5 g or 45 g
12. a one-year-old child: 1100 g or 11 kg
13. one train car: 2 t or 20 t
14. two raisins: 2 g or 120 g

## PRACTICE

Choose the more likely mass.

1. a turkey: 60 g or 6 kg
2. 25 raisins: 25 g or 250 g
3. a ski boot: 1.7 kg or 17 kg
4. 3 L milk: 300 g or 3 kg
5. a small car: 1 t or 100 kg
6. a tennis ball: 50 g or 550 g

Copy and complete.

7. 1 kg = ■ g
8. 9000 g = ■ kg
9. 4000 g = ■ kg
10. 1 t = ■ kg
11. 5000 kg = ■ t
12. 2000 kg = ■ t
13. 1 kg + 250 g = ■ g
14. 900 g + 1100 g = ■ kg
15. 4 kg - 500 g = ■ g
16. 1 t = 100 kg + ■ kg

By how much is the mass smaller or larger than 1 t?

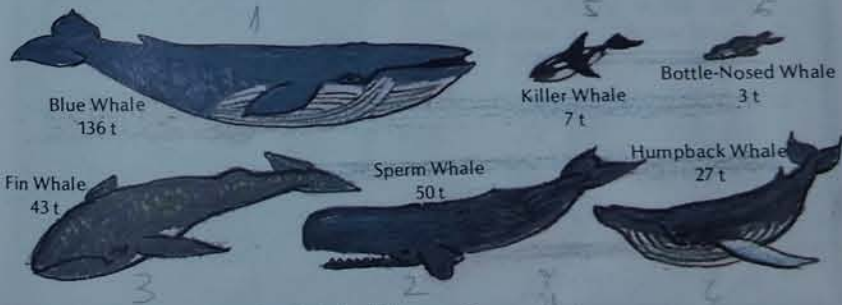
17. 950 kg
18. 2460 kg
19. 0.5 t
20. 145 kg
21. 1.5 t

Solve.

22. One tub of honey has a mass of 3.6 kg. What would be the mass of 4 tubs this size?
23. Mr. Bauer went on a diet. His mass went from 90 kg to 78 kg. How much did he lose?

## Stunning Tonnes

Make a bar graph of the masses of these whales.



What is the mass of each whale in kilograms?

# Temperature

Temperature is measured in degrees Celsius.



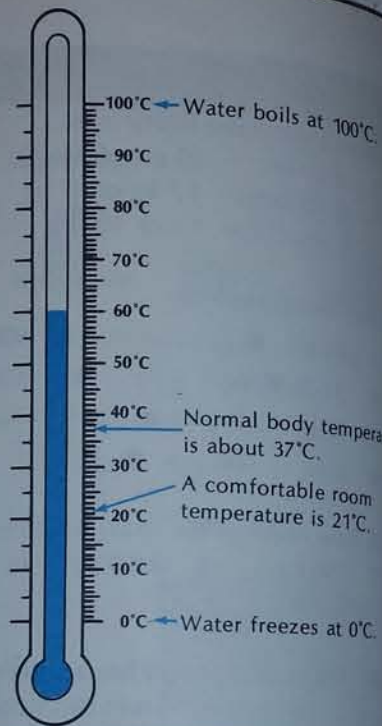
hot soup about 70°C



baby's bath about 35°C



summer day about 27°C



## EXERCISES

Write a, b, or c for the most likely measure.

- Comfortable room temperature  
(a) 36°C (b) 30°C (c) 21°C
- Good skiing day  
(a) 15°C (b) 0°C (c) 10°C
- Good weather for swimming  
(a) 18°C (b) 28°C (c) 8°C
- Cup of hot chocolate  
(a) 100°C (b) 5°C (c) 65°C
- Comfortable bath water  
(a) 15°C (b) 40°C (c) 75°C
- Temperature needed to make ice cubes  
(a) 30°C (b) 10°C (c) 0°C

## PRACTICE

Copy and complete.

- Water freezes at  °C.
- Water boils at  °C.
- Normal body temperature is  °C.
- Usual room temperature is  °C.

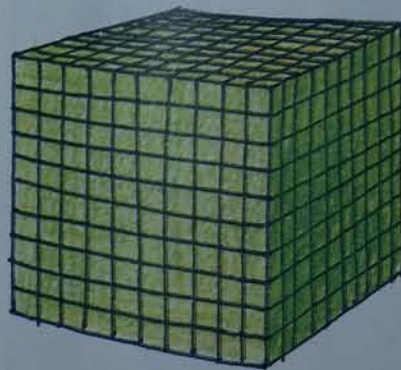
Write the temperature.



Choose the most likely temperature.

- A hot summer day  
60°C 32°C 22°C
- A nice autumn day  
13°C 3°C 30°C
- A person's fever  
21°C 37°C 39°C
- A cup of hot tea  
35°C 70°C 20°C

## A Special Cube



Copy and complete.

length = 10 cm  
width = 10 cm  
height = 10 cm  
Volume =

or

length = 1   
width = 1   
height = 1   
Volume = 1

Try to make a cube with the above measurements.