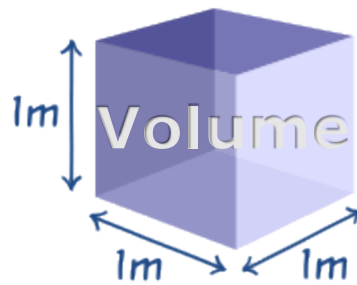


AREA, PERIMETER, AND VOLUME



Unit Overview

In this unit, you are going to study area, perimeter and volume. The area of a figure is the number of square units needed to cover it. Perimeter is the distance around a figure. Volume is the amount of space taken an object holds.

Area

Area: Area is the number of square units needed to cover a figure's surface.

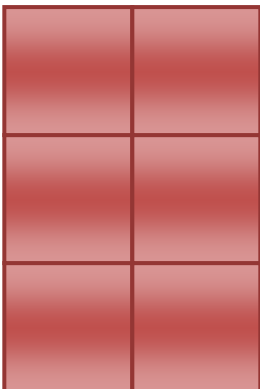
How to find the area:

1) You can count the number of square units inside a figure's surface. For example, you can count the number of square tiles it takes to fill the inside of an object.

OR

2) You can multiply the length by the width.

$$\text{Area} = \text{length} \times \text{width}$$

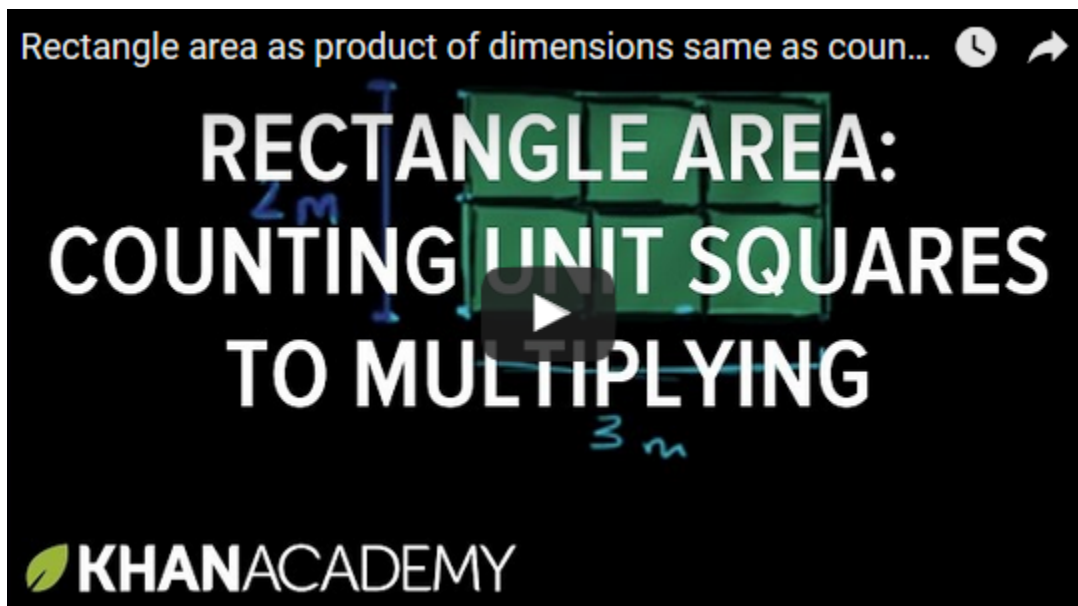


1) Count the square units. $\text{Area} = 6 \text{ square units}$

2) The length = $2 \times$ width = 3 $\text{Area} = 2 \times 3 = 6 \text{ square units}$

* **It is very important** that you label the area in **square units**.

Click on the link to watch the video "[Rectangle area as a product of dimensions same as counting unit squares](#)".



Perimeter

Perimeter: Perimeter is the distance around the outside of a figure (polygon).

How to find perimeter:

To find the perimeter you add up the measurement of all its sides.

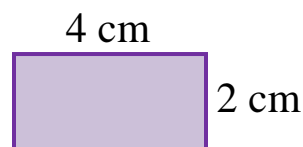
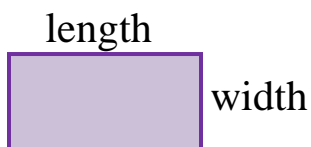
One quick and easy way to find the perimeter is to use paper clips. You can count the number of paper clips it takes to go around the outside of an object.

You can use a *formula* to find the perimeter. A *formula* is a rule in math for solving problems. There are two rules for finding the perimeter.

Rectangle Formulas

1) Perimeter = length + width + length + width $P = l + w + l + w$

2) Perimeter = $2 \times$ length + $2 \times$ width $P = 2 \times l + 2 \times w$



$$1) \text{ Perimeter} = 4 \text{ cm} + 2 \text{ cm} + 4 \text{ cm} + 2 \text{ cm}$$

$$\text{Perimeter} = 12 \text{ cm}$$

$$2) P = 2 \times 4 + 2 \times 2$$

$$\text{Perimeter} = 12 \text{ cm}$$

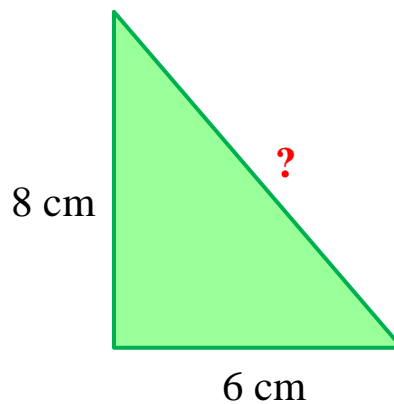
- When finding the perimeter of any other polygons, add up all the sides.

You can also find the missing length if you know the perimeter. The perimeter of this triangle is 24 cm. To find the missing length, add up the lengths you are given and subtract from the given perimeter.

$$6 \text{ cm} + 8 \text{ cm} = 14 \text{ cm}$$

$$24 \text{ cm} - 14 \text{ cm} = 10 \text{ cm}$$

The missing length is 10 cm.

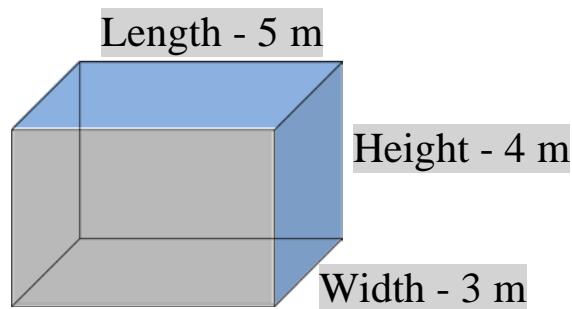


Click on the link to watch the video "[Introduction to Perimeter](#)" or click on the video to learn how to find the perimeter by adding up the side lengths of various shapes.



Volume

Volume: Volume is the amount of space a solid figure takes up. You measure volume in cubic units.



Length - is the measurement across the top of the prism

Width - is the measurement across the side of the prism

Height - is the measurement that runs up and down the prism

One way to find the volume is to take a 1-inch, 1-foot, 1-centimeter cube, etc. and count how many cubes it would take to fill an object. For example, you could count how many sugar cubes it takes to fill a shoe box and that would be the volume.

To find the volume, multiply the length, times the width, times the height.

$$\text{Volume} = l \times w \times h$$

$$V = 5 \text{ m} \times 3 \text{ m} \times 4 \text{ m}$$

$$V = 20 \text{ m} \times 3 \text{ m}$$

$$V = 60 \text{ cubic m}$$

* Remember to label volume in **cubic units**.

Click on the link to watch the video "[Volume: Measuring with Unit Cubes](#)" or click on the video to learn how to find volume by counting cubes.

