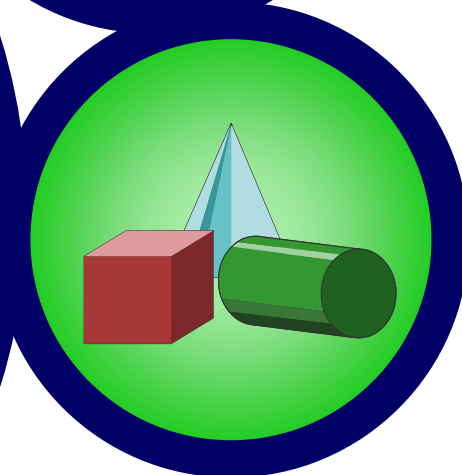
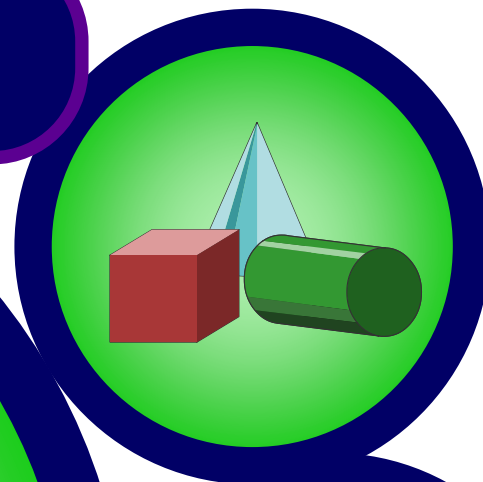
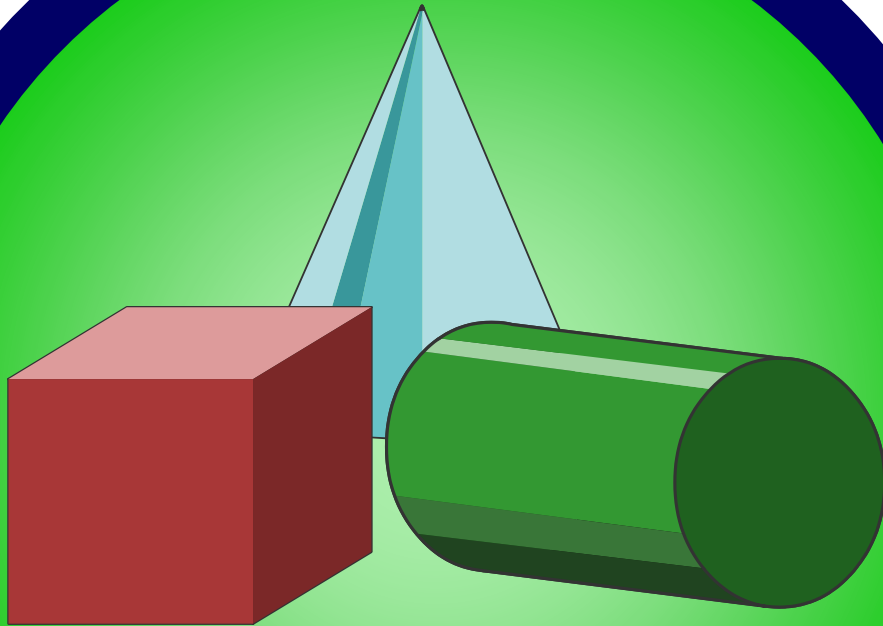


# Area and Perimeter

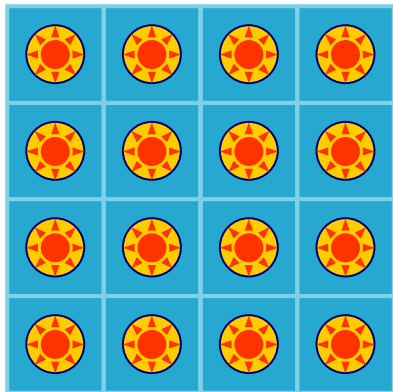


**Rectangles**

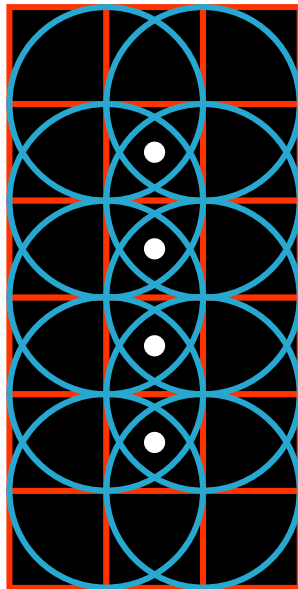
# Area

The **area** of a shape is a measure of how much surface the shape takes up.

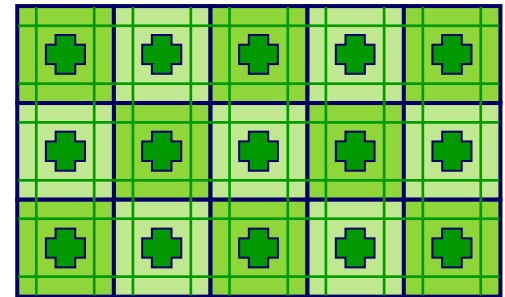
For example, which of these rugs covers a larger surface?



Rug A



Rug B



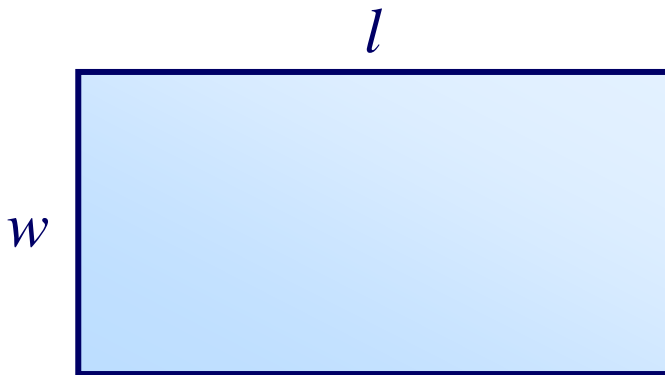
Rug C



# Rectangles- Perimeter

The perimeter is the distance around the rectangle.

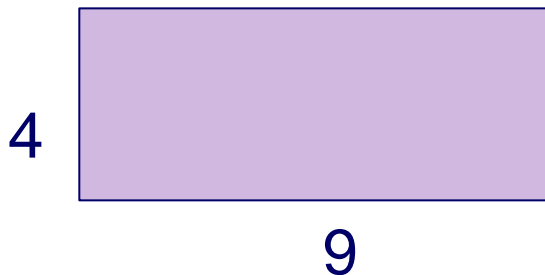
Perimeter of a rectangle with length  $l$  and width  $w$  can be written as:



$$\text{Perimeter} = 2l + 2w$$

or

$$\text{Perimeter} = 2(l + w)$$



$$l=9 \text{ and } w=4$$

$$P=2(9+4)$$

$$P=2(13)=26$$



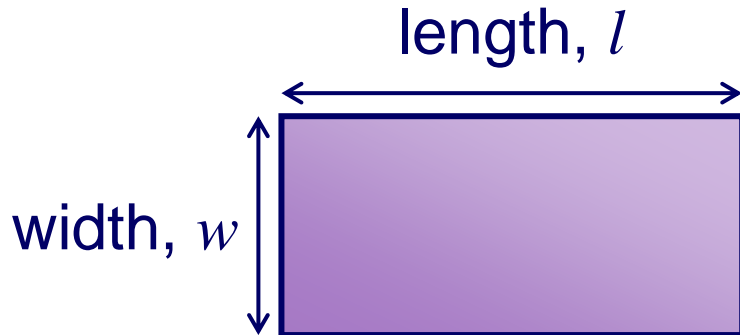
# Area of a rectangle

Area is measured in **square units**.

For example, we can use  $\text{mm}^2$ ,  $\text{cm}^2$ ,  $\text{m}^2$  or  $\text{km}^2$ .

The  $^2$  tells us that there are two dimensions, length and width.

We can find the area of a rectangle by multiplying the length and the width of the rectangle together.

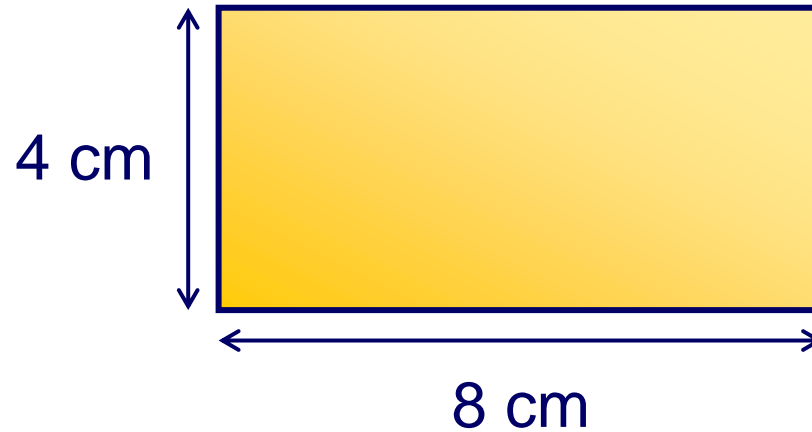


$$\begin{aligned}\text{Area of a rectangle} \\ &= \text{length} \times \text{width} \\ &= lw\end{aligned}$$



# Area of a rectangle

What is the area of this rectangle?



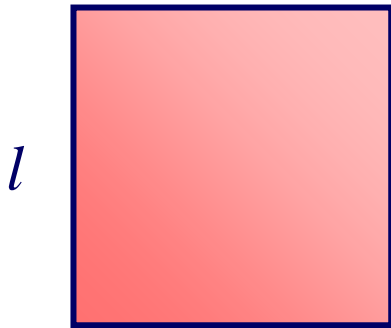
$$\begin{aligned}\text{Area of a rectangle} &= lw \\ &= 8 \text{ cm} \times 4 \text{ cm} \\ &= \mathbf{32 \text{ cm}^2}\end{aligned}$$



# Squares

When the length and the width of a rectangle are equal we call it a square. A square is just a special type of rectangle.

The perimeter of a square with length  $l$  is given as:



$$\text{Perimeter} = 4l$$

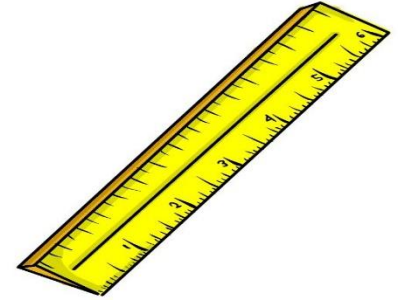
The area of a square is given as:

$$\text{Area} = l^2$$



## **Now You Try!**

**Get either a ruler or measuring tape.**



**Find an item on your table, in your bag, in the room, etc... And measure the length and width.**

**If you have a ruler you will be measuring in centimeters.**

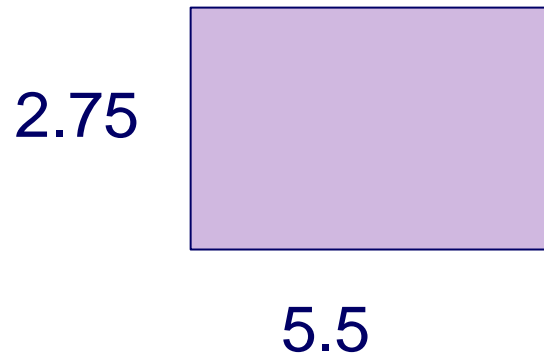
**If you have the measuring tape you will measure in inches.**

**Share your results with a neighbor.**



## Real World Problems

Ms. Patterson is putting up new border on her bulletin boards. If the bulletin board is 5.5 feet by 2.75 feet, how much border will she need?



Ms. Patterson will need 16.5 feet of border for her bulletin board.

What measure are we looking for? **Perimeter!**

Lets Solve it!

$$\text{Perimeter} = 2(l + w)$$

$$\text{Perimeter} = 2(5.5+2.75)$$

$$\text{Perimeter} = 16.5 \text{ feet}$$



## Real World Problems

Lucy is painting a wall for her school's stage production. The wall measures 13 feet long and 9 feet wide. If one can of paint covers 50 square feet will it be enough? Explain.

What measurement must we have to solve the problem?

Area

$\text{Area} = l \times w$

$\text{Area} = 13 \times 9$

$\text{Area} = 117$  square feet

Does Lucy have enough paint?

**NO**

Why/ Why Not?

Because one can of paint will only cover 50 square feet

## Real World Problems

Brendan is going to paint a wall that measures 10 feet tall by 13 feet wide. The wall has two windows that are 2.5 feet wide by 4 feet tall.

What is the area of the wall that he is going to paint? (Think about this one, will he paint the windows?)

Area of the wall =  $10 \times 13$

Area of the wall = 130 square feet

Area of the window =  $2.5 \times 4$

Area of window = 10 square feet

Area of 2 windows =

20 square feet

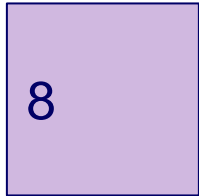
Area of wall he will paint is the Area of the wall subtract the area of 2 windows.

Area of wall he will paint =  $130 - 20$

Area of wall he will paint = 110 square feet

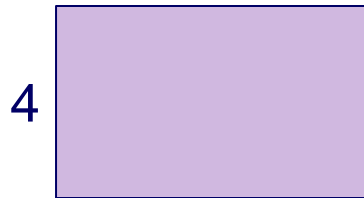
## Real World Problems

Create two rectangles with an area of 64 but have different perimeter.



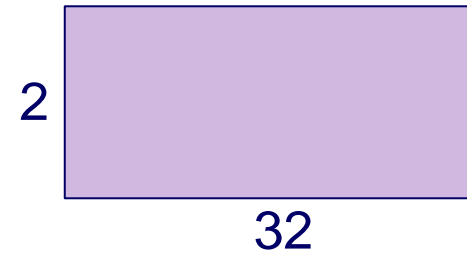
$$\text{Area} = 8 \times 8 = 64$$

$$\text{Perimeter} = 2(8+8) = 32$$



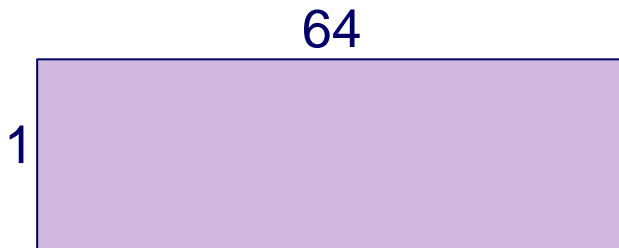
$$\text{Area} = 16 \times 4 = 64$$

$$\text{Perimeter} = 2(16+4) = 40$$



$$\text{Area} = 2 \times 32 = 64$$

$$\text{Perimeter} = 2(2+32) = 68$$

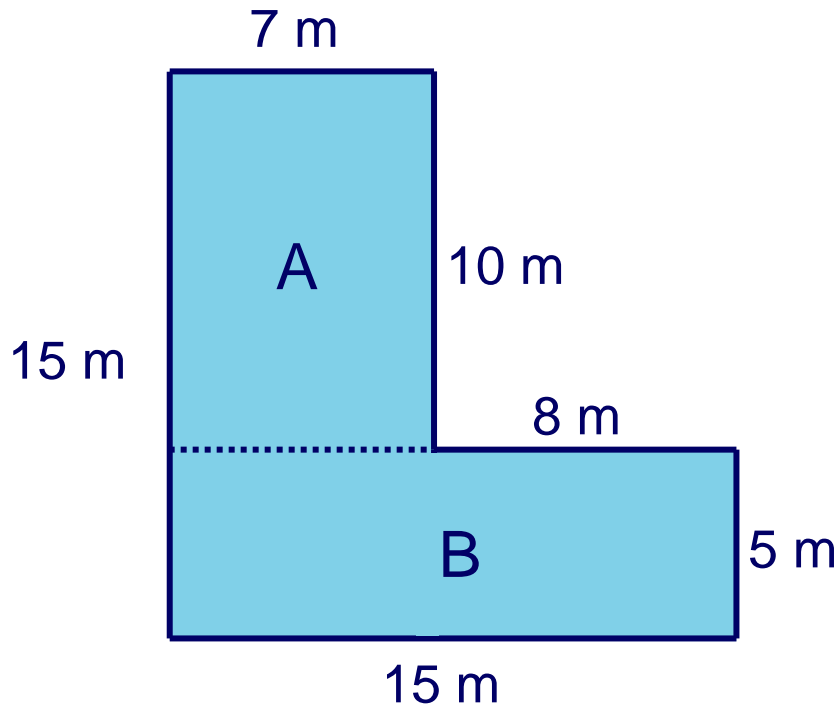


$$\text{Area} = 1 \times 64 = 64$$

$$\text{Perimeter} = 2(1+64) = 130$$

# Area of shapes made from rectangles

How can we find the area of this shape?



We can think of this shape as being made up of two rectangles.

Either like this ...

... or like this.

Label the rectangles A and B.

$$\text{Area A} = 10 \times 7 = 70 \text{ m}^2$$

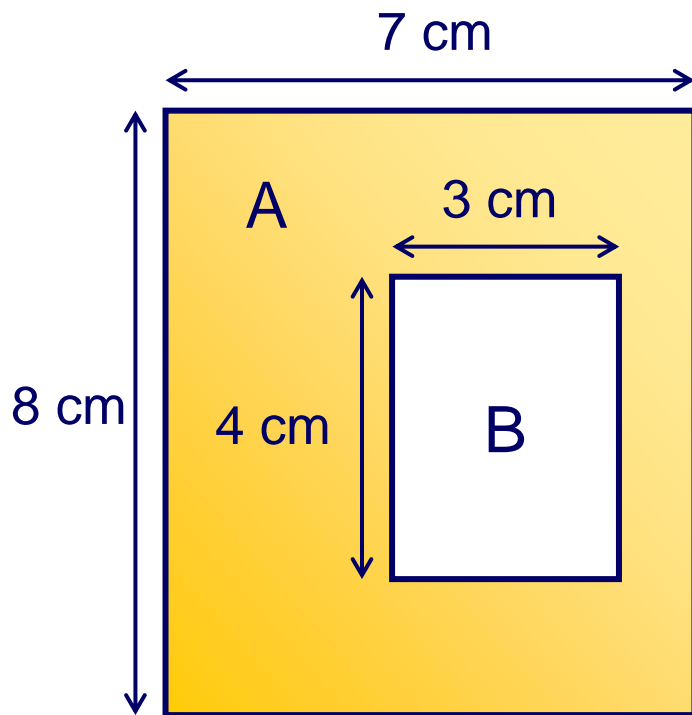
$$\text{Area B} = 5 \times 15 = 75 \text{ m}^2$$

$$\text{Total area} = 70 + 75 = \mathbf{145 \text{ m}^2}$$



# Area of shapes made from rectangles

How can we find the area of the shaded shape?



We can think of this shape as being made up of one rectangle cut out of another rectangle.

Label the rectangles A and B.

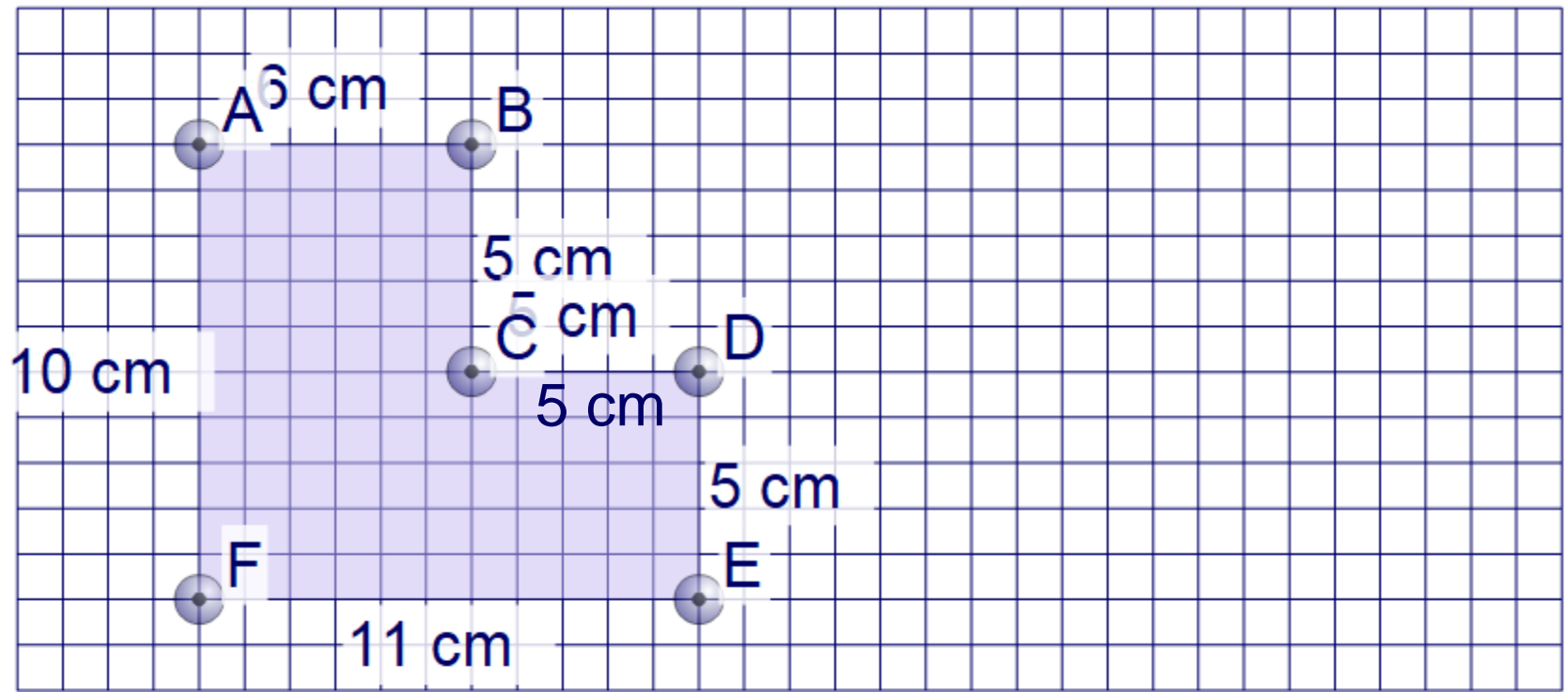
$$\text{Area A} = 7 \times 8 = 56 \text{ cm}^2$$

$$\text{Area B} = 3 \times 4 = 12 \text{ cm}^2$$

$$\text{Total area} = 56 - 12 = 44 \text{ cm}^2$$



# Shapes made from rectangles



Grid Off

Perimeter =

Area =



If you would like any additional information or a copy of the power point please contact us by email.

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