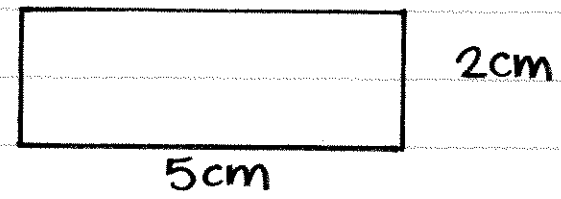
AREA and VOLUME

Area involves **2** dimensions.
For rectangles, there is a _____
and a _____

→ The formula for the area of a rectangle is: $A =$ _____ · _____
or in short-hand:
$A =$ ___ · ___

↳ EXAMPLE 1:
Find the area of the given rectangle:



$A =$ _____ · _____
$=$ _____

NOTE: recall $x \cdot x = x^2$
similarly, $(cm)(cm) = cm^2$

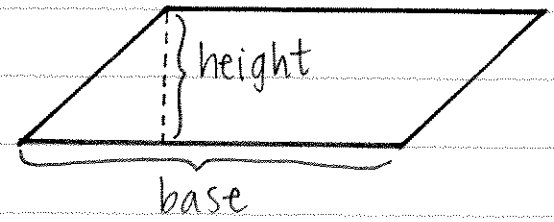
cm^2 is said "centimeters squared"
or "square centimeters"

→ The formula for the area of a parallelogram is:

$A =$ _____ $\cdot$ _____

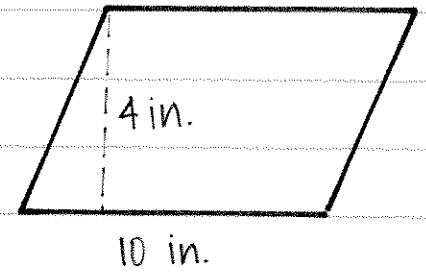
or in short-hand:

$A =$ ____ $\cdot$ ____



↳ EXAMPLE 2:

Find the area of the given parallelogram:

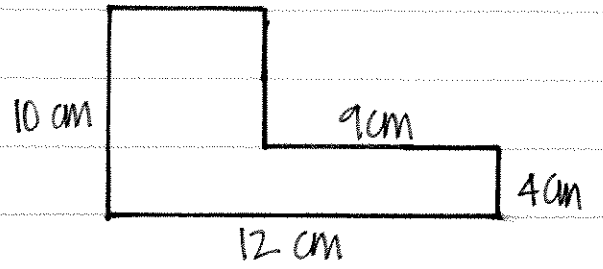


$A =$ _____ $\cdot$ _____

$=$ _____

example 3:

Find the area of the given figure:

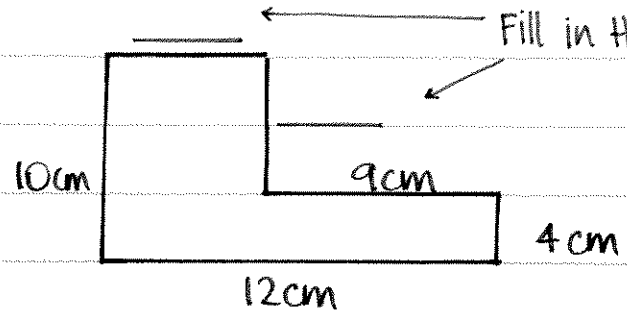


We must find the missing lengths in order to calculate the area.

To find the missing **vertical** length, we ask _____ added to what number will give us _____. Since the entire vertical length is _____ and part of that length is _____, the missing vertical length is _____.

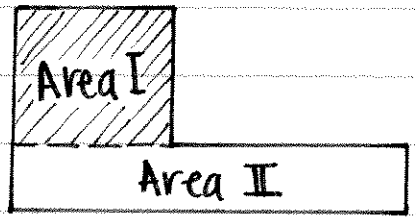
To find the missing **horizontal** length, we ask _____ added to what number will give us _____. Since the entire horizontal length is _____ and part of that length is _____, the missing length is _____.

So we get:



Finally, to find the total area, we must partition our figure so that it consists of two rectangles.

Note: When calculating perimeter, it is NOT necessary to partition the shape.



Area I = _____

= _____

Area II = _____

= _____

Therefore, the total area is Area I + Area II

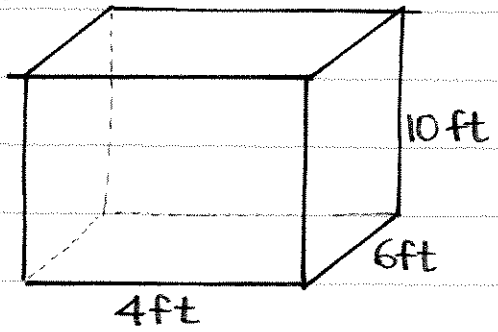
= _____

= _____

Volume involves **3** dimensions.
For rectangular prisms, there is a _____, a _____, and a _____.

The formula for the volume of a rectangular prism is: $V =$ _____ · _____ · _____
or in short-hand:
$V =$ ___ · ___ · ___

EXAMPLE 4:
Find the volume of the given rectangular prism:

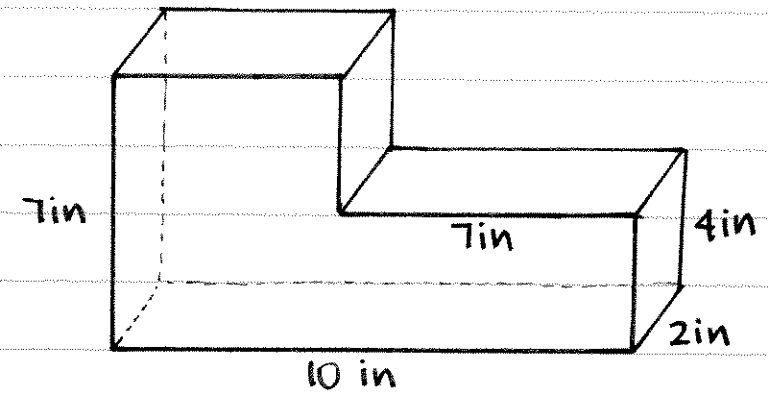


$V =$ _____ · _____ · _____
$=$ _____

Note: recall $x \cdot x \cdot x = x^3$
similarly, $(ft)(ft)(ft) = ft^3$
ft^3 is said "feet cubed"
or "cubic feet"

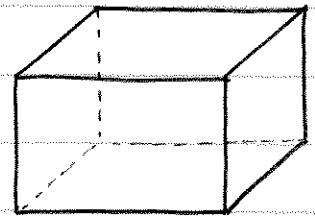
example 5:

Find the volume of the given object:



Just like with the area problem in example 3, we must partition our solid into two parts.

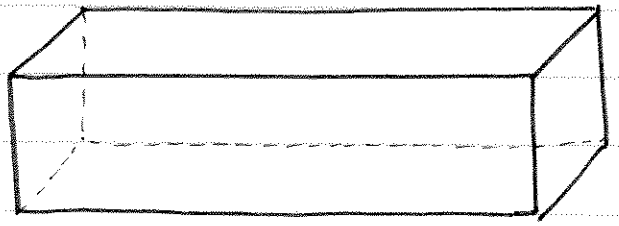
[Fill in all the lengths]



$V_I = l \cdot w \cdot h$

$= \_\_\_\_\_$

$= \_\_\_\_\_$



$V_{II} = l \cdot w \cdot h$

$= \_\_\_\_\_$

$= \_\_\_\_\_$

So the total volume is:

$V_{TOTAL} = V_I + V_{II}$

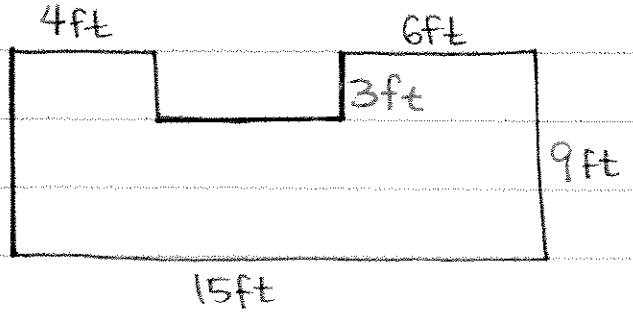
$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

AREA and VOLUME Practice Problems

1. Perimeter has ____ dimension(s),
Area has ____ dimension(s), and
volume has ____ dimension(s).

2. Find the area of the given figure:



3. Find the volume of the given object: