## Apply Volume Formulas

## Can use a formula to find the volume of a rectangular prism.

## Florida's B.E.S.T.

- Geometric Reasoning 5.GR.3.1, 5.GR.3.2, 5.GR.3.3
- Mathematical Thinking \& Reasoning MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7. 1
|MTR Both prisms show the same dimensions and have the same volume.

3 in.


- Underline what you are asked to find.
- Circle the numbers you need to use to solve the problem. the box Mike is making?

One Way Use length, width, and height.
You can use a formula to find the volume of a rectangular prism.

$$
\begin{aligned}
& \text { Volume }=\text { length } \times \text { width } \times \text { height } \\
& \qquad V=I \times w \times h
\end{aligned}
$$

MTR 5.1

Use patterns and structures.

How can you use the Associative Property of Multiplication to group the part of the formula

## $\square$ UNLOCK the Problem paad

Mike is making a box to hold his favorite DVDs. The length of the box is 7 inches, the width is 5 inches and the height is 3 inches. What is the volume of

STEP 1 Identify the length, width, and height of the rectangular prism.
length = $\qquad$ in.
width $=$ $\qquad$ in.
height $=$ $\qquad$ in.


STEP 2 Multiply the length and the width.
$\qquad$ $\times$ $\qquad$ $=$

STEP 3 Multiply the product of the length and width by the height.
$35 \times$ $\qquad$ $=$ $\qquad$

So, the volume of Mike's DVD box is $\qquad$ cubic inches.

You have learned one formula for finding the volume of a rectangular prism. You can also use another formula.

$$
\begin{aligned}
& \text { Volume }=\text { Base area } \times \text { height } \\
& \quad V=B \times h \\
& B=\text { area of the base shape, } \\
& h=\text { height of the solid figure. }
\end{aligned}
$$

## Another Way Use the area of the base shape and height.

 Emilio's family has a sandcastle kit. The kit includes molds for several two-dimensional figures that can be used to make sandcastles. One of the molds is a rectangular prism like the one shown at the right. How much sand will it take to fill the mold?Replace $B$ with an expression for

| $V=$ | B |  | $h$ | the area of the base shape. Replace $h$ with the height of the prism. |
| :---: | :---: | :---: | :---: | :---: |
| $V=$ |  | $\times$ |  | Multiply. |
| $V=$ |  |  |  |  |
| $V=$ | u |  |  |  |



So, it will take $\qquad$ cubic inches of sand to fill the rectangular prism mold.

## Try This!

## (A) Find the volume.


$V=l \times w \times h$
$V=$ $\qquad$ $\times$ $\qquad$ $\times$ $\qquad$
$V=$ $\qquad$ $\times$ $\qquad$
$V=$ $\qquad$ cu ft
(B) Find the unknown measurement.
$60=$ $\qquad$ $\times$

Think: If I filled this prism with centimeter cubes, each layer would have 20 cubes. How many layers of 20 cubes are equal to 60?

So, the unknown measurement is $\qquad$ cm .

