Filling Boxes

Things to look for:

1. Why are the units used to measure volume called cubic units?
2. How does knowing the area of the base help you to find the volume of a prism?
3. How do you know that the two formulas, $V = B \cdot h$ and $V = l \cdot w \cdot h$ will both give you the volume of a square-based prism?

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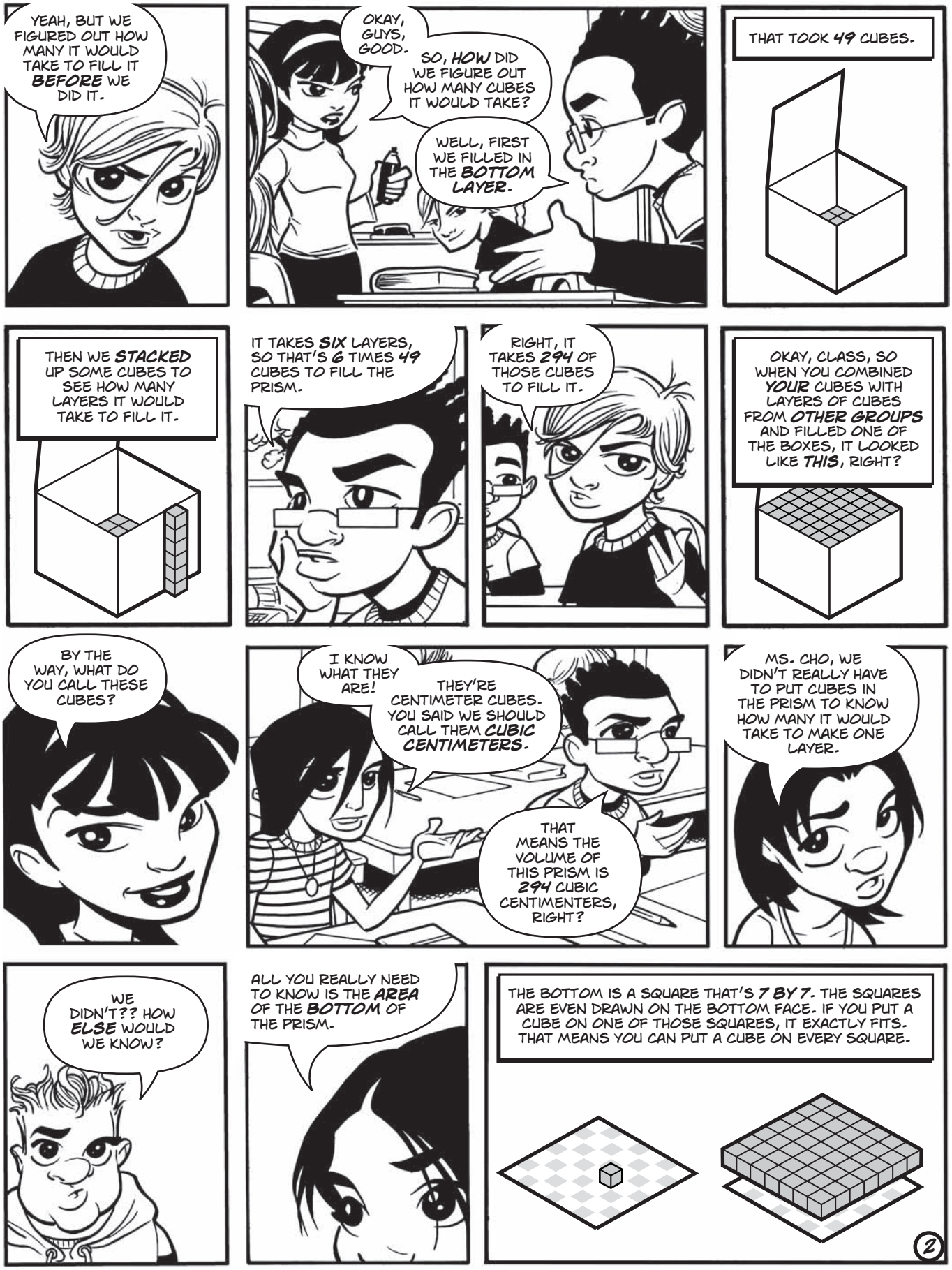

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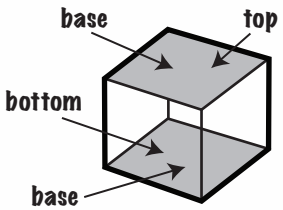
SO, THAT MEANS THAT THE AREA OF THE BOTTOM OF THE PRISM IS THE ***SAME*** AS THE NUMBER OF CUBES IN A LAYER.

CLASS, WHAT JUANA JUST SAID IS ***VERY*** IMPORTANT. YOU WILL USE THIS IDEA AGAIN AND AGAIN TO FIND THE VOLUMES OF SEVERAL DIFFERENT SHAPES.

BY THE WAY, CLASS, WHAT JUANA IS CALLING THE BOTTOM IS ALSO CALLED A ***BASE*** OF THE PRISM.

DON'T FORGET THAT A PRISM HAS TWO FACES THAT ARE ***PARALLEL*** AND ***CONGRUENT***.

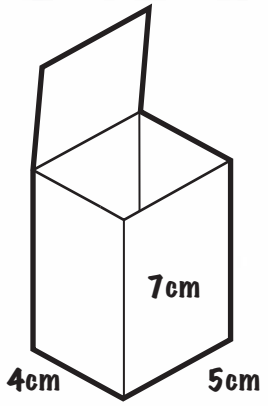


WE CALL THESE SHADED FACES THE BASES OF THE PRISM, BUT YOU MIGHT ALSO THINK OF THEM AS THE ***TOP*** AND ***BOTTOM***.

LET'S LOOK AT A PICTURE OF ANOTHER PRISM AND SEE IF WE CAN FIND ITS VOLUME.

THIS PRISM IS RESTING ON A BASE THAT IS A ***4 BY 5*** RECTANGLE.

THE HEIGHT OF THE PRISM IS ***7*** CENTIMETERS.



SO, HOW CAN YOU ***FIND*** THE VOLUME?

I KNOW HOW! THE AREA OF THAT BOTTOM BASE IS ***20*** SQUARE CENTIMETERS.

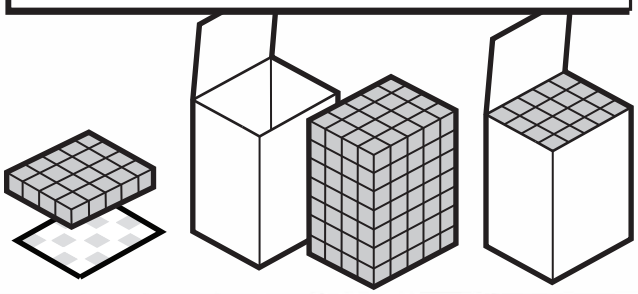
THAT MEANS THERE ARE ***20 CUBES*** IN A LAYER, RIGHT?

AND THERE'LL BE ***SEVEN*** LAYERS BECAUSE THE HEIGHT IS ***7*** CENTIMETERS.

SO, THE VOLUME IS ***7 TIMES 20***. THAT'S ***140*** CENTIMETERS.

MS. CHO, DOES THAT MEAN THAT ALL WE HAVE TO DO TO FIND THE ***VOLUME*** OF A PRISM IS TO MULTIPLY THE AREA OF THE BASE TIMES THE HEIGHT?

THAT'S RIGHT. THE ***AREA OF THE BASE*** TELLS YOU HOW MANY CUBES WILL FIT IN ONE LAYER, AND THE ***HEIGHT*** TELLS HOW MANY LAYERS IT WILL TAKE TO FILL THE PRISM.



WAIT A MINUTE! ISN'T THAT LIKE A FORMULA?

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