CDC

Aidan Johnson

Mrs. Jacki

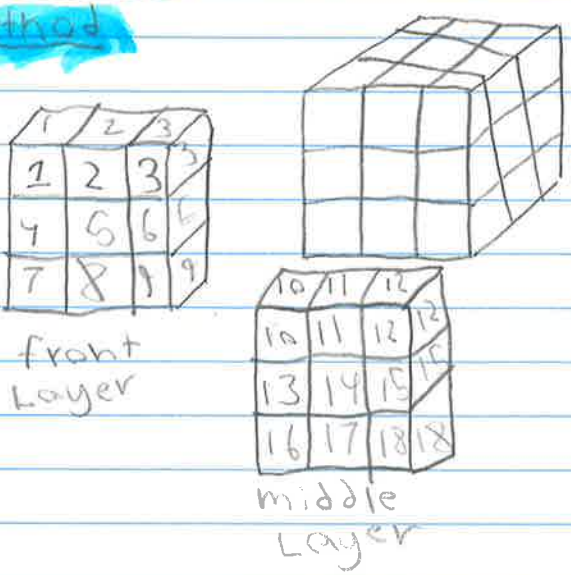
B block

Question: Michael says to find the volume of a rectangular prism just count the cubes. Sam says you use the formula L x W x H to find the volume. Who is correct? Explain your reasoning.

Claim: Michael and Sam's methods are correct, but they are different ways to find the volume of a rectangular prism.

Data:

Michael's method



Total cubes = 27

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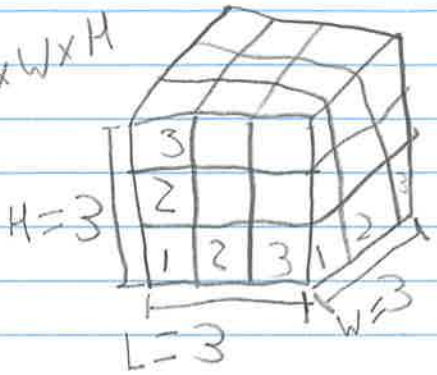
Sam's method

$V = L \times W \times H$



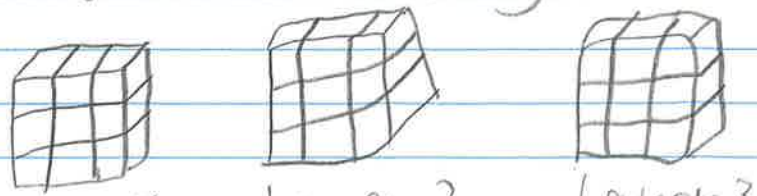
Total cubes = 27

$3 \times 3 \times 3$

$9 \times 3 = 27$

Commentary

Both methods are correct. Sam's way is just a faster way to count all the cubes in a cube or rectangular prism hexahedron (a 3D shape with 6 faces such as a cube, trapizoidal prism, Rectangular prism etc...). If you were to use Michael's method you would need to break up the cube into however many layers it has to count the cubes correctly like this below



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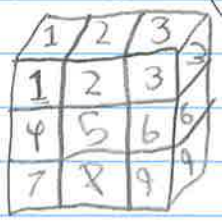
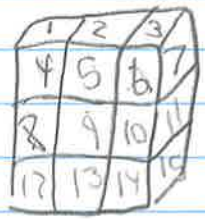
then you need to know not to count the cubes wrong.

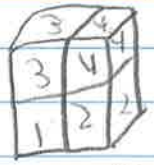
right way ✓



wrong way X

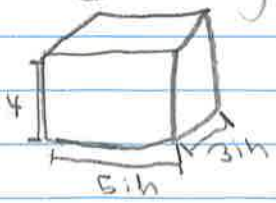


Why you need to count this way is because this is one cube →  and on this one cube there are three faces that you can see →  but each FACE is not 1 cube, one cube is this →  not this → □ ← that is a square and a square is not a 3D shape it is 2D. If you had a cube like this →  you would count like this ↓



Layer 1 Layer 2

and you would have a total of 8 cubes. The only problem with this method is if you get problems like this



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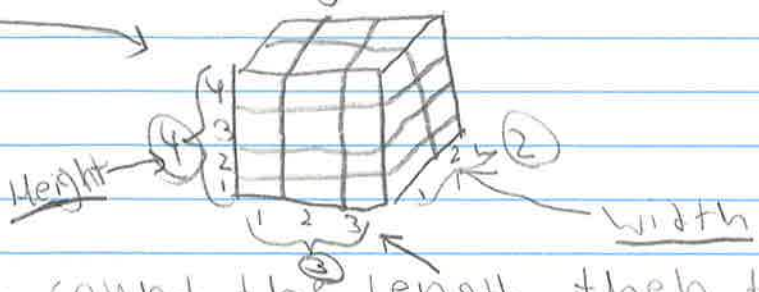
then you can't relly count the cubes.

Now if you choose to do Sam's method then it is faster and to me a lot easier to do. First if you had a cube like this →



You would count the length, then the width and then the height. then your expression is 3x2x4 and to get the answer multiply 3x2=6 then do 6x4=24 and there is your answer. now you know two ways to calculate volume