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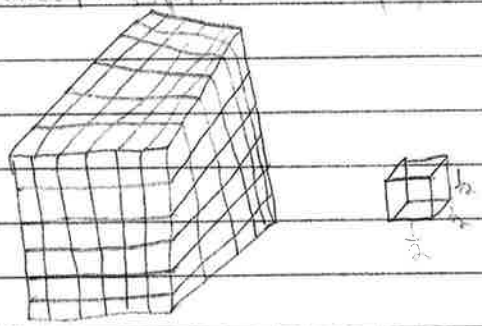
Prompt: Tracy found the volume of this 3-D shape was 6x6x6. Mark said the volume was 6x6x6x½. Who is correct? Explain with proper notation.



Claim:
Mark and Tracy have both gotten this problem correct. Mark did length x width x height x Volume. Or lwhxV. Tracy found the volume by counting all the ½ cubes on the edge.

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Mrs. Joshi

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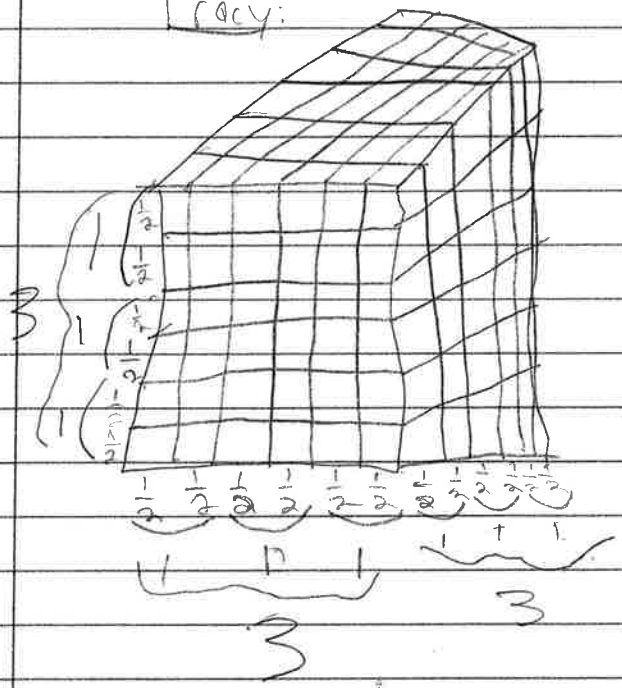
Data:

Tracy:



$3 \times 3 \times 3$

$= 27 in^3$

3 Biggers
vs. Jeshi

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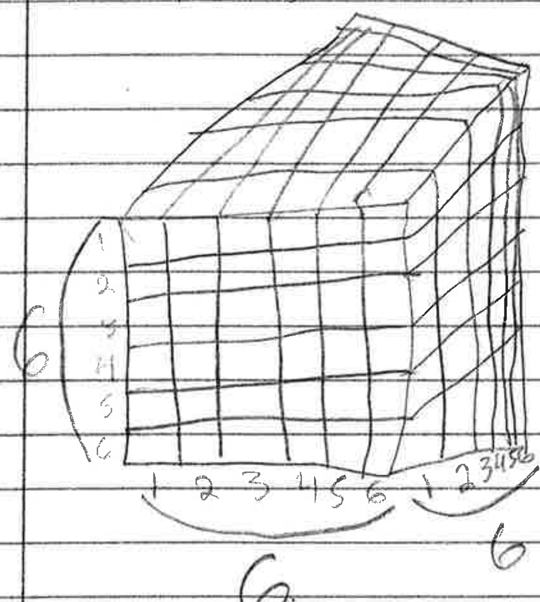
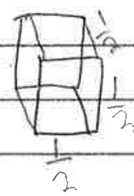
Data:

Marks:





$6 \times 6 \times 6 = 216$ $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$

$\frac{216}{1} \times \frac{1}{8}$

$2\overline{)216,8}$ → $108,4$ → $54,2$ → $27,1$

$= \frac{27}{1} = 27\ in^3$

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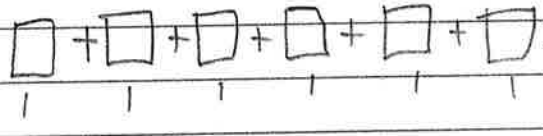
Commentary:
Now I will show how to do Tracy's way.

Tracy started by counting all of the $\frac{1}{2}$ cubes on the sides and then made them into a whole. For example: If there are 6 cubes that are all $\frac{1}{2}$ all you do is think "what is $\frac{1}{2}$ of 6"? ... 3!!!!!



$= 6$

$\frac{1}{2}$ of 6

$= 3$

Once you do this you will do this for the other 2 sides or Width and height. If you do this correct you should get 3 for all 3 sides. (l, W, H)
If so, you will now do: $3 \times 3 \times 3$.

$3 \times 3 = 9$

$9 \times 3 = 27 in^3$

This is Tracy's method and how she got $27 in^3$

EJ Biggers
Mrs. Jessie

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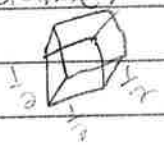
Commentary:
Now I will show how to do Mark's way

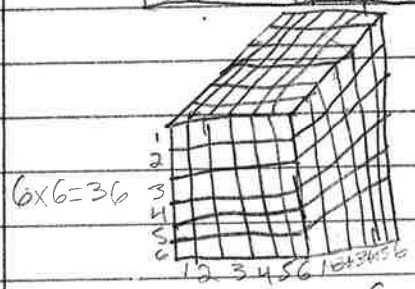
What Mark did was he did $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$.
He got $\frac{1}{8}$ which is his volume.

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$$



Because we are doing Volume we need to multiply $\frac{1}{2}$ x the number of cubes in this cube or rectangular prisim.

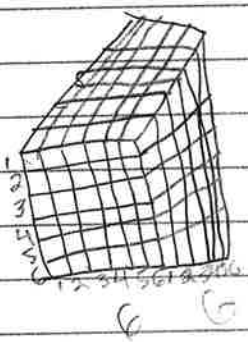
For example:



6x6=36

6

or



6 6

$36 \times 6 = 216$

$6 \times 6 \times 6 = 216$

Next, you will multiply $216 \times \frac{1}{8}$. To make 216 a fraction you will put a 1 under 216.

$$\frac{216}{1} \times \frac{1}{8}$$

Before multiplying these fractions you need to simplify. In this case we will do G.C.F. (Greatest common Factor)

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Mrs. Joshi

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Commentary:

First you simplify it by 2 because 16 is divisible by 2. Then you will get 108 to replace 216 and 4 to replace 8. Next you will simplify 108 and 4 by 2 because they are also both divisible by 2. After that you should get 54 and 2 to replace 108 and 4. After this you will simplify 54 and 2 by 2.

$$\begin{array}{r|l} & 27,1 \\ 2 & 54,2 \\ 2 & 108,4 \\ 2 & 216,8 \end{array}$$

Once you do all these steps correctly you will get 27,1. The last thing that we do is multiply the fractions.

$$\frac{27}{1} \times \frac{1}{1} = \frac{27}{1}$$

27 in^3

You will get 27 as your answer.

Now you know that Mark and Tracy are both right even though they used different methods.