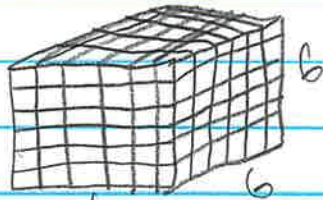


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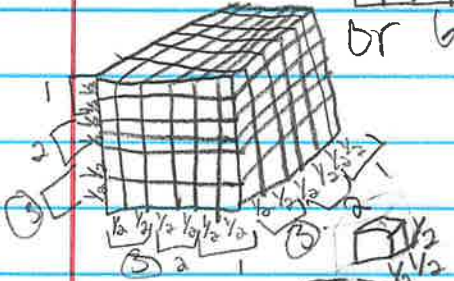
Question: Tracy said the volume of this 3D shape was $3 \times 3 \times 3$. Mark said the volume was $6 \times 6 \times 6 \times \frac{1}{8}$. Who is correct? Explain with proper reasoning.

Claim: Both are correct. You can do $L \times W \times H \times$ the volume of one cube or see how many $\frac{1}{8}$'s equal one and count the cubes.

Data:



or $6 \times 6 \times 6 = 216$



$3 \times 3 \times 3 = 27 \text{ units}^3$

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

$216 \times \frac{1}{8} = \frac{216}{8} = 27$

27 units^3

Commentary: First lets try Tracy's method.

First you know that each cube has a length, height and width of $\frac{1}{2}$. And two $\frac{1}{2}$'s equal 1 whole. So for every two cubes you count on the length, height, and width you have 1 whole. Now you should have $3 \text{ by } 3 \text{ by } 3$. Last of all for your final step multiply. I know

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that $3 \times 3 = 9$ so that leaves us with 3×9 which equals 27. Now because it's volume you must add the units and your exponent (27 units³). Lets try Marks way now.

First we have to get the volume of one cube. We should have $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$. Next just multiply across. $2 \times 2 = 4$ and $4 \times 2 = 8$. So

8 is the denominator. $|x| = 1$ and $|x| = 1$ so our numerator should be 1. Now

when you put them together you should get $\frac{1}{8}$. Next we have to find out our length, height, and width. For the length I got 6, the height I have 6, and the width I got 6. Now we have to multiply

them altogether. $6 \times 6 = 36$ and $6 \times 36 = 216$.

So we have $216 \times \frac{1}{8}$. We need to change this to an improper fraction. To do that just put a 1 as your denominator. Next

you have to multiply them. $\frac{216}{1} \times \frac{1}{8}$.

216 times 1 equals 216. 8 times 1 = 8.

You should have $\frac{216}{8}$. You need to simplify that to a mixed number. That means

you have to divide 216 by 8. 8 can go into 2 zero times. So zero at the top. Now 8 can go into 21 two times. So bring the 2 to the top. Now $21 - 16 = 5$. Next bring down the 6.

8 can go into 56 seven times. So put 7 at the top.

b.G.I.

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Now your answer should be 27. Next

you have to add your units and exponent (27 units²)

As you can see both answers are the same.

Tracy and Mark are both right. Both ways

are correct. One might take longer but

you still get the same answer.