Volume with Fractional Edges

Fractions

Name: _____ Date: _____ Grade 6

1. **A rectangular prism measures $\frac{1}{2}$ inch by $3\frac{1}{3}$ inches by 4 inches. Which expression can be used to find its volume?**

A $\frac{1}{2} + 3\frac{1}{3} + 4$

B $\frac{1}{2} \cdot 3\frac{1}{3} \cdot 4$

C $\frac{1}{2} + 3\frac{1}{3} \cdot 4$

D $\frac{1}{2} \cdot 3\frac{1}{3} + 4$

2. **A cube has an edge length of 4 centimeters. Which expression tells how many cubes with an edge length of $\frac{1}{2}$ centimeter are needed to fill it?**

A $4 \cdot 4 \cdot 4 \cdot \frac{1}{2}$

B $4\frac{1}{2} \cdot 4\frac{1}{2} \cdot 4\frac{1}{2}$

C $\frac{1}{2} \cdot 4^3$

D $(4 \cdot 2) \cdot (4 \cdot 2) \cdot (4 \cdot 2)$

3. **For each prism, record how many $\frac{1}{3}$-inch cubes can be packed into it. Then find its volume.**

Length (in.)	Width (in.)	Height (in.)	Number of $\frac{1}{3}$-in. Cubes	Volume (cu. in.)
$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$		
1	$\frac{1}{3}$	$\frac{1}{3}$		
1	1	1		
$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$		
2	1	$\frac{2}{3}$		

4. **Look at the table in Problem 3. What is the relationship between the volume and the number of $\frac{1}{3}$-inch cubes?**

5. Think about a cube with an edge length of 1 inch.

a How many cubes with an edge length of $\frac{1}{4}$ inch are needed to build it? Explain your thinking.

b What is the volume, in cubic inches, of one cube with an edge length of $\frac{1}{4}$ inch?

6. Maya is using wooden cubes with edge lengths of $\frac{1}{2}$ inch to build a larger cube with an edge length of 4 inches. How many small cubes does she need? Explain your thinking.

7. A rectangular prism measures $1\frac{1}{2}$ inches by 2 inches by $3\frac{1}{2}$ inches.

a How many cubes with an edge length of $\frac{1}{2}$ inch would pack the prism? Explain your thinking.

b Use your answer from part a to find the volume of the prism in cubic inches.

8. Jo says that 1,500 cubes with an edge length of $\frac{1}{5}$ inch are needed to fill a rectangular prism that is 2 inches by 3 inches by $1\frac{2}{5}$ inches. Is Jo correct? Show or explain your thinking.