

Standard Addressed by these Number Talks:

5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Pose these number sentences to students and ask them to solve them mentally. The student's role is to demonstrate fluent strategies for solving these problems. The teacher's role is to pose the problem, give students a few minutes to solve the problems and then lead a discussion about how they solved the problems. Teachers will need to write down students' thinking using number sentences that will show how students solved the problems. You need not pose all at once, but instead do a few each week during the unit (posing one problem in one setting, or a string of problems that build on each other in one setting or over the course of a week). Conversations may range from 10-20 minutes in length. See the article *Number Talks Build Numerical Reasoning* (October 2011 • teaching children mathematics) for more information.

Standard	Number Talk Problem Sets	Rationale
<p>5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p>	$75 + 75 + 75$ $150 + 150 + 150 + 150$ $122 + 122 + 122 + 122 + 122$ $99 + 99 + 99 + 99 + 99$ $519 + 519 + 519 + 519 + 519$	<p>When students find volume, they can first find the area of the base of the 3D cube and then use repeated addition to find the total volume. These number talks give students experiences with repeated addition.</p>
<p>5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p>	$5 \times 2 \times 2$ $5 \times 2 \times 3$ $5 \times 5 \times 4$ $10 \times 10 \times 20$ $10 \times 10 \times 12$ $10 \times 10 \times 24$ $9 \times 8 \times 2$ $9 \times 10 \times 2$ $9 \times 9 \times 2$ $9 \times 9 \times 4$	<p>The volume formula asks students to multiply the length x width x height. These number talks give students experiences in multiplying three numbers in order to find a product, much like they will do when they are finding volume.</p>