

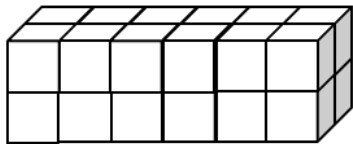
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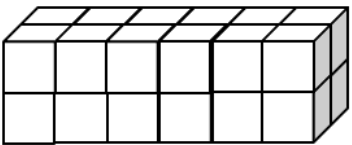
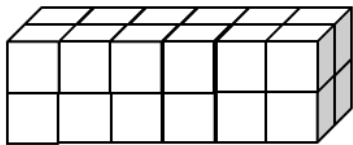
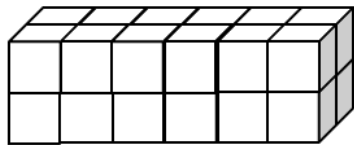
1.

- Build the rectangular prism pictured below to the left with your cubes, if necessary.
- Decompose it into layers in three different ways. Show your thinking by tracing the layers on each of the prisms below.
- Complete the missing information in the tables.

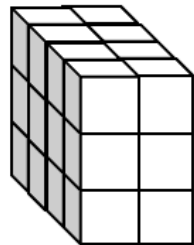
a.



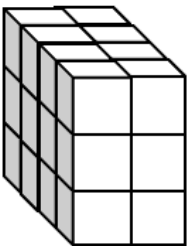
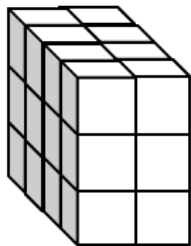
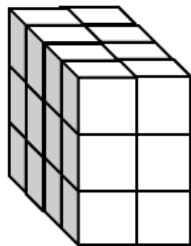
Number of Layers	Numbers in Each Layer	Volume of the Prism
		cubic units
		cubic units
		cubic units



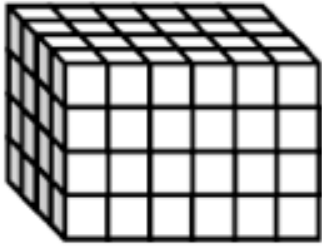
b.



Number of Layers	Numbers in Each Layer	Volume of the Prism
		cubic units
		cubic units
		cubic units



2. Josh and Jonah were finding the volume of the prism below. The boys agree that 4 layers can be added together to find the volume. Josh says that he can see on the end of the prism that each layer will have 16 cubes in it. Jonah says that each layer has 24 cubes in it. Who is right? Explain how you know using words, numbers, and/or pictures.

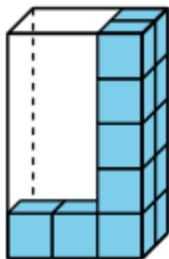


3. Elias is building a rectangular prism. The bottom layer of the rectangular prism is shown.



He builds a prism that has 4 layers. What is the volume, in cubic units, of the completed rectangular prism?

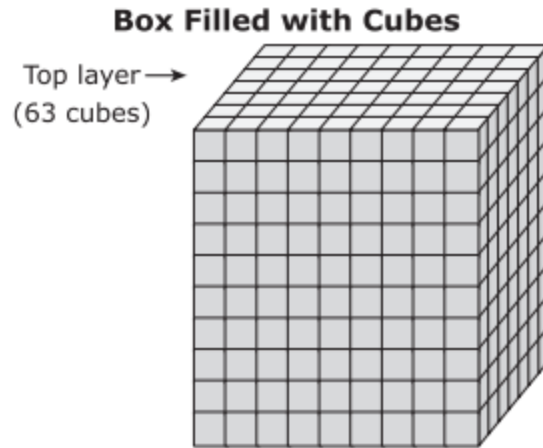
4. A rectangular prism is partially filled with unit cubes, as shown below.



Mauro says he cannot find the volume of the rectangular prism because he doesn't know the number of cubes in the bottom layer.

- Explain Mauro's mistake.
- Find the volume of the prism.

5. A student filled a right rectangular prism-shaped box with unit cubes to find the volume, in cubic units. The student's work is shown.



Student's Work

- I packed my box full of cubes. Each cube has a volume of 1 cubic unit.
- I counted 63 cubes in the top layer.
- Since there are 9 layers of cubes below the top layer, I solved $63 \times 9 = 567$. So there are 567 cubes.
- The volume of my box is 567 cubic units.

a. Explain why the student's reasoning is incorrect. Provide the correct volume, in cubic units, of the box.

b. CHALLENGE: A second box also has a base of 63 square units, but it has a volume of 756 cubic units. What is the height, in units, of the second box? Explain or show how you determined the height.

Sources

1. EngageNY Mathematics [Grade 5 Mathematics > Module 5 > Topic A > Lesson 3](#) — Problem Set, Question #1 [Grade 5 Mathematics > Module 5 > Topic A > Lesson 3](#) of the New York State Common Core Mathematics Curriculum from [EngageNY](#) and [Great Minds](#). © 2015 Great Minds. Licensed by EngageNY of the New York State Education Department under the [CC BY-NC-SA 3.0 US](#) license. Accessed Dec. 2, 2016, 5:15 p.m.. Modified by Fishtank Learning, Inc.
2. EngageNY Mathematics [Grade 5 Mathematics > Module 5 > Topic A > Lesson 3](#) — Problem Set, Question #2 [Grade 5 Mathematics > Module 5 > Topic A > Lesson 3](#) of the New York State Common Core Mathematics Curriculum from [EngageNY](#) and [Great Minds](#). © 2015 Great Minds. Licensed by EngageNY of the New York State Education Department under the [CC BY-NC-SA 3.0 US](#) license. Accessed Dec. 2, 2016, 5:15 p.m..
3. Smarter Balanced Assessment Consortium: Item and Task Specifications [Math Item Specifications - Claim 1, Grade 5 \(G5_1I_MD_Spec_v3_phase3\)](#)
— Task Model 1b, Example Stem
[Math Item Specifications - Claim 1, Grade 5 \(G5_1I_MD_Spec_v3_phase3\)](#) from [Development and Design: Item and Task Specifications](#) made available by [Smarter Balanced Assessment Consortium](#). © The Regents of the University of California – Smarter Balanced Assessment Consortium. Accessed June 4, 2020, 10:48 a.m..
4. Illustrative Mathematics [Grade 5 > Unit 1 > Lesson 4](#) — Activity 1: Layers in Rectangular Prisms [Grade 5 > Unit 1 > Lesson 4](#), accessed on Jan. 10, 2022, 9:19 a.m., is licensed by [Illustrative Mathematics](#) under either the [CC BY 4.0](#) or [CC BY-NC-SA 4.0](#). For further information, contact [Illustrative Mathematics](#). Modified by Fishtank Learning, Inc.