

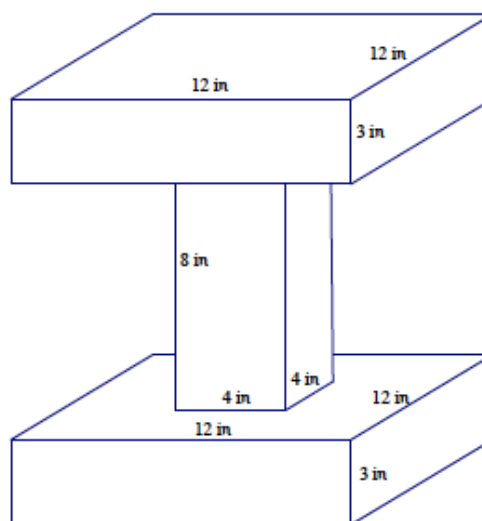
Lesson Summary

To find the volume of a three-dimensional composite object, two or more distinct volumes must be added together (if they are joined together) or subtracted from each other (if one is a missing section of the other). There are two strategies to find the volume of a prism:

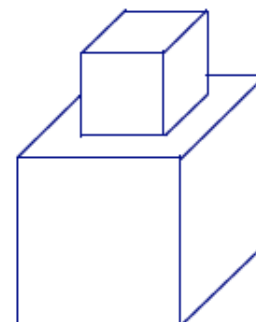
- Find the area of the base and then multiply times the prism's height.
- Decompose the prism into two or more smaller prisms of the same height and add the volumes of those smaller prisms.

Problem Set

1. Find the volume of the three-dimensional object composed of right rectangular prisms.



2. A smaller cube is stacked on top of a larger cube. An edge of the smaller cube measures $\frac{1}{2}$ cm in length, while the larger cube has an edge length three times as long. What is the total volume of the object?



3. Two students are finding the volume of a prism with a rhombus base but are provided different information regarding the prism. One student receives Figure 1, while the other receives Figure 2.

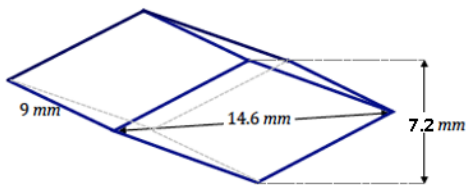


Figure 1

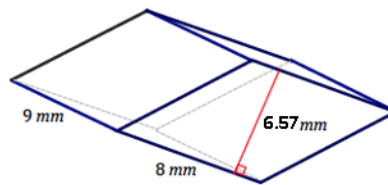
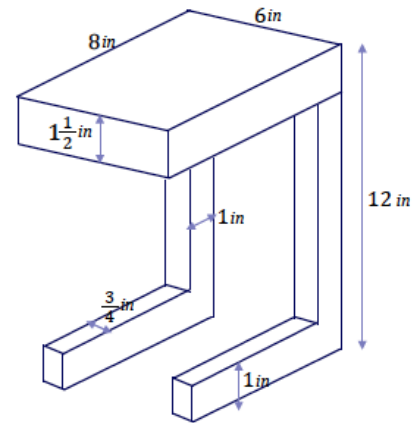
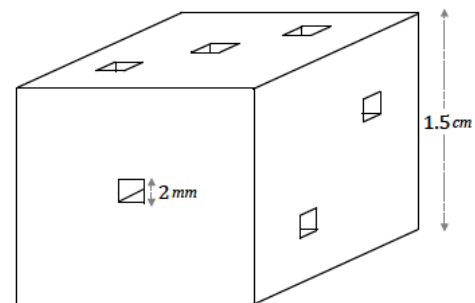


Figure 2

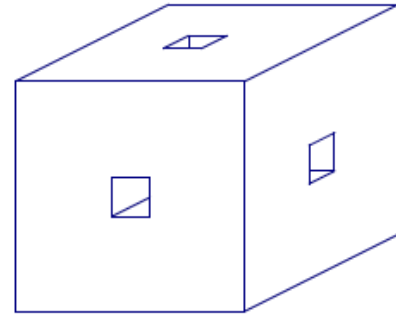
- Find the expression that represents the volume in each case; show that the volumes are equal.
 - How does each calculation differ in the context of how the prism is viewed?
4. Find the volume of wood needed to construct the following side table composed of right rectangular prisms.



5. A plastic die (singular for dice) for a game has an edge length of 1.5 cm. Each face of the cube has the number of cubic cutouts as its marker is supposed to indicate (i.e., the face marked 3 has 3 cutouts). What is the volume of the die?



6. A wooden cube with an edge length of 6 inches has square holes (holes in the shape of right rectangular prisms) cut through the centers of each of the three sides as shown in the figure. Find the volume of the resulting solid if the square for the holes has an edge length of 1 inch.



7. A right rectangular prism has each of its dimensions (length, width, and height) increased by 50%. By what percent is its volume increased?
8. A solid is created by putting together right rectangular prisms. If each of the side lengths is increase by 40%, by what percent is the volume increased?