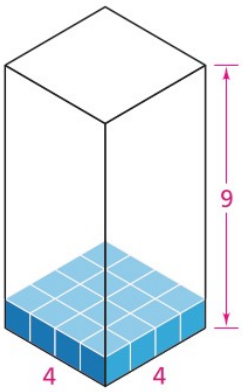
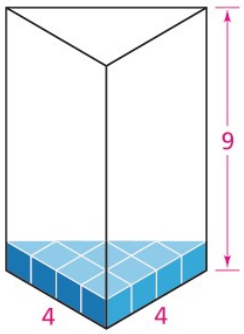
2.2 Packing a Prism

Calculating Volume of Prisms

To calculate the exact volume of a rectangular prism, you could visualize packing it with layers of identical cubes. This works well for square prisms.



It is impossible to pack a triangular prism with cubes in the same way. But, consider the special case of a prism whose base is a right triangle. The figure below shows how you could visualize packing this prism with cubes and parts of cubes.

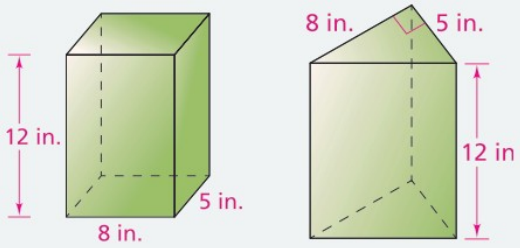


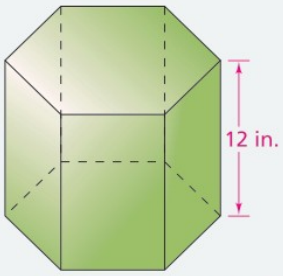
- How many cubes would you need to fill the prism?

- How can you find the volume of any prism?
- Compare it to finding the volume of a rectangular prism.

Problem 2.2

A Use these prisms to answer the questions below.





Area of the Base: about 166 in.^{2}

1. How are the volumes of the prisms related?
2. Describe a general strategy for finding the volume of each prism. How does your strategy help you compare the volumes of the prisms?

B

1. A triangular prism has a right triangle base with one leg 4 inches and the other leg 7 inches. The height of the prism is 11 inches. What is its volume?
2. What is the volume of an octagonal prism whose base area is 15 square centimeters and whose height is 4.5 centimeters?

C Describe a strategy for finding the volume of any prism. Give examples.

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