

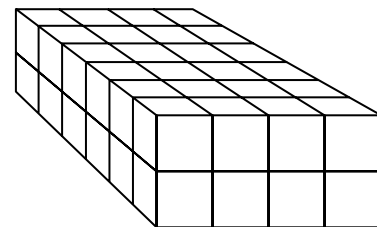
## Additional Practice

### Investigation 2

#### Filling and Wrapping

1. The bottom of a closed rectangular box has an area of 50 square centimeters. If the box is 8 centimeters high, give at least three possibilities for the dimensions of the box.

2. a. The rectangular prism at the right is made from centimeter cubes. What are the dimensions of the prism?



- b. What is the surface area of the prism?

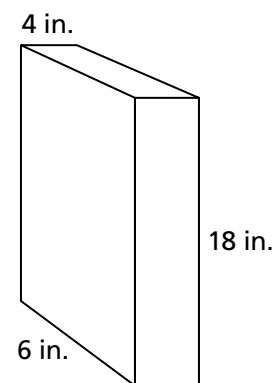
- c. What is the volume of the prism? That is, how many cubes are in the prism?

- d. Give the dimensions of a different rectangular prism that can be made from the same number of cubes. What is the surface area of the prism?

3. Use the diagram at the right to answer the following questions.

- a. What is the total surface area of the box, including the bottom and the top?

- b. How many inch cubes would it take to fill the box? Explain your reasoning.

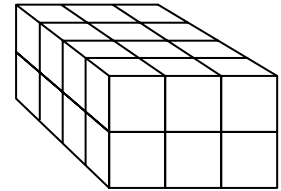


## Additional Practice *(continued)*

### Investigation 2

#### Filling and Wrapping

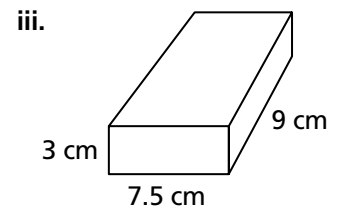
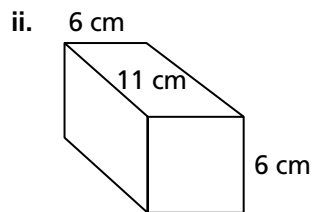
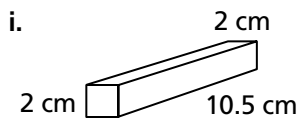
4. a. Each small cube in the rectangular prism at the right has edges of length 2 centimeters. What are the dimensions of the prism in centimeters?



- b. What is the surface area of the prism in square centimeters?

- c. How many 1-centimeter cubes would it take to make a prism with the same dimensions as this prism? Explain your reasoning.

5. Answer parts (a) and (b) for each closed box below.



- a. What is the surface area of each box?

- b. What is the volume of each box?

**Additional Practice** *(continued)*

**Investigation 2**

**Filling and Wrapping**

6. For each number of cubes below, arrange the cubes in a rectangular prism so that a box which holds those cubes would require the least material to completely cover it. Sketch the arrangement and give the dimensions.

a. 5

b. 6

c. 7

d. 8

7. If you have  $N$  cubes, one arrangement that always forms a rectangular prism is  $1 \times 1 \times N$ . For what values of  $N$  is this the only such arrangement? Explain.