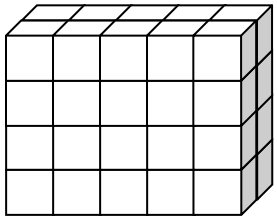
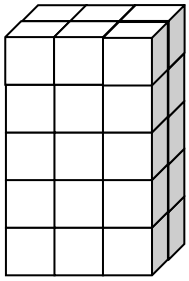
Name _____ Date _____

1. Each rectangular prism is built from centimeter cubes. State the dimensions and find the volume.

a. 

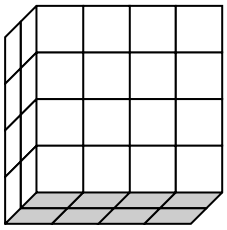
Length: 5 cm
Width: 2 cm
Height: 4 cm
Volume: 40 cm^3

5 x 2 x 4
10 x 4 = 40

b. 

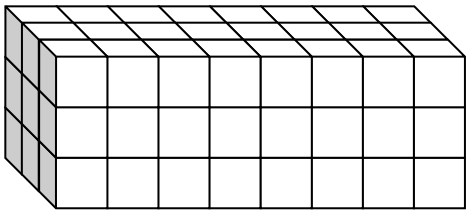
Length: 3 cm
Width: 2 cm
Height: 5 cm
Volume: 30 cm^3

3 x 2 x 5
6 x 5 = 30

c. 

Length: 4 cm
Width: 2 cm
Height: 4 cm
Volume: 32 cm^3

4 x 2 x 4
8 x 4 = 32

d. 

Length: 8 cm
Width: 3 cm
Height: 3 cm
Volume: 72 cm^3

8 x 3 x 3
24 x 3 = 72

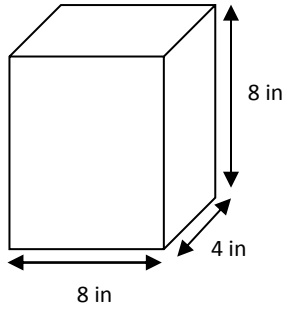
2. Write a multiplication sentence that you could use to calculate the volume for each rectangular prism in Problem 1. Include the units in your sentences.

a. $5\text{ cm} \times 2\text{ cm} \times 4\text{ cm} = 40\text{ cm}^3$ b. $3\text{ cm} \times 2\text{ cm} \times 5\text{ cm} = 30\text{ cm}^3$

c. $4\text{ cm} \times 2\text{ cm} \times 4\text{ cm} = 32\text{ cm}^3$ d. $8\text{ cm} \times 3\text{ cm} \times 3\text{ cm} = 72\text{ cm}^3$

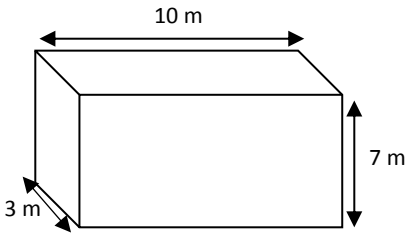
3. Calculate the volume of each rectangular prism. Include the units in your number sentences.

a.



Volume: $8\text{ in} \times 4\text{ in} \times 8\text{ in} = 256\text{ in}^3$

b.



Volume: $10\text{m} \times 7\text{m} \times 3\text{m} = 210\text{ m}^3$

4. Mrs. Johnson is constructing a box in the shape of a rectangular prism to store clothes for the summer. It has a length of 28 inches, a width of 24 inches, and a height of 30 inches. What is the volume of the box?

$V = l \times w \times h$

$= 28\text{ in} \times 24\text{ in} \times 30\text{ in}$

$= 20{,}160\text{ in}^3$

The volume of the box is 20,160 cubic inches.

5. Calculate the volume of each rectangular prism using the information that is provided.

a. Face area: 56 square meters, height: 4 meters.

$V = (\text{face area}) \times \text{height}$

$= 56\text{ m}^2 \times 4\text{ m} = 224\text{ m}^3$

b. Face area: 169 square inches, height: 14 inches.

$V = (\text{face area}) \times \text{height}$

$= 169\text{ in}^2 \times 14\text{ in}$

$= 2{,}366\text{ in}^3$