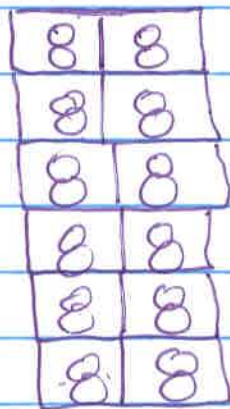# M5·L3 — Compose + Decompose Right Rectangular Prisms w/ Layers

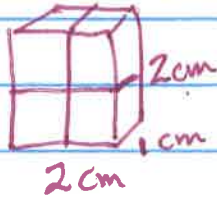**Ap**

There are 192 ice cubes in 12 ice cube trays
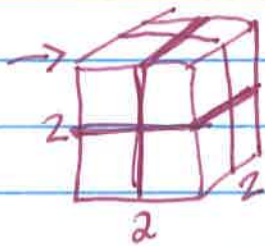

$$(2 \times 8) \times 12$$
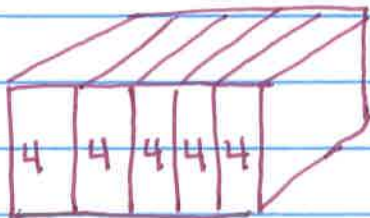$$16 \times 12$$
$$= 192$$

$$(2\,cm \times 1\,cm) \times 2\,cm = 4\,cm^3$$

$$(2\,cm \times 2\,cm) \times 2\,cm = 8\,cm^3$$

$$4\,cm^3 + 4\,cm^3 + 4\,cm^3 + 4\,cm^3 + 4\,cm^3$$
$$= 20\,cm^3$$

$$5 \times 4\,cm^3 = 20\,cm^3$$

Number of Layers	Cubes in each Layer	Volume
5	4	20 cm^3
2	10	20 cm^3
2	10	20 cm^3
5	12	60 cm^3
3	20	60 cm^3
4	15	60 cm^3

Name _____ Date _____

Use these rectangular prisms to record the layers that you count.
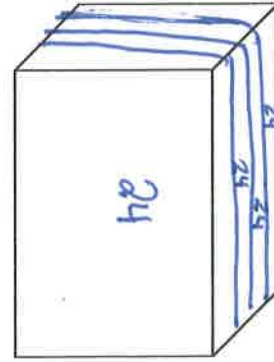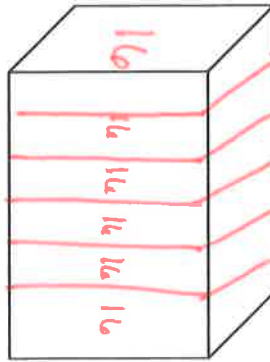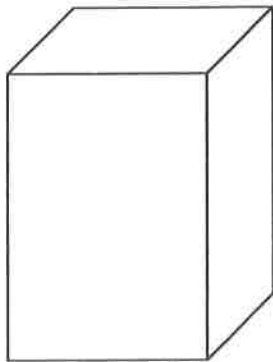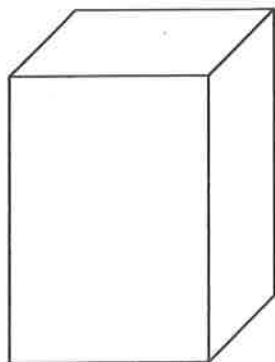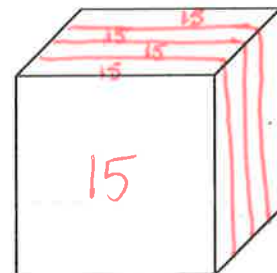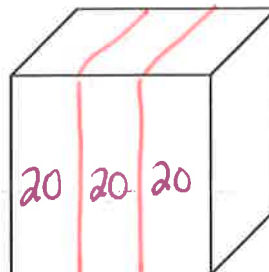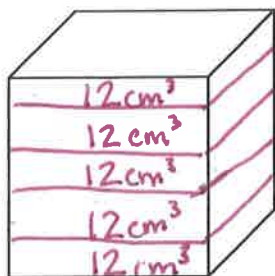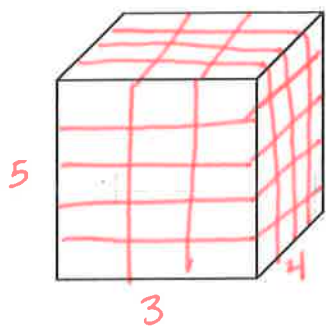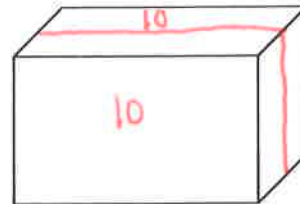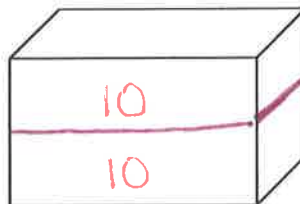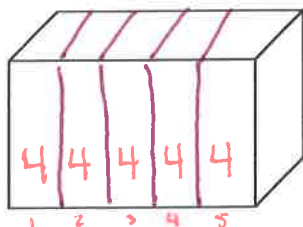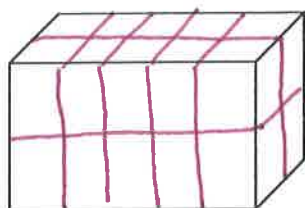
rectangular prism recording sheet

Josh

2. Josh and Jonah were finding the volume of the prism to the right. 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.

Jonah

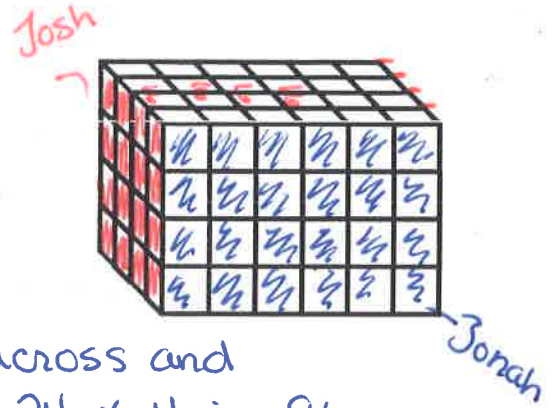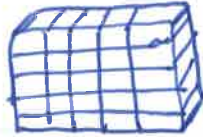Jonah is right. Each layer is 6 across and 4 deep, so 24 layers per cube. 24 × 4 is 96. Josh sees 16 cubes but would have to multiply by 6 instead of 4. 16 × 4 is 64, not 96.

3. Marcos makes a prism 1 inch by 5 inches by 5 inches. He then decides to create layers equal to his first one. Fill in the chart below, and explain how you know the volume of each new prism.

Number of Layers	Volume	Explanation
2		
4		
7		

4. Imagine the rectangular prism below is 6 meters long, 4 meters tall, and 2 meters wide. Draw horizontal lines to show how the prism could be decomposed into layers that are 1 meter in height.

4

2

6
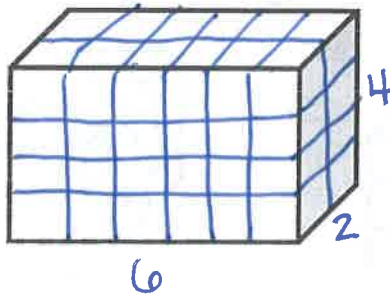
It has __4__ layers from bottom to top.

Each horizontal layer contains __12__ cubic meters.

The volume of this prism is __48__.