## Unit 4 Lesson 14: Fractional Lengths in Triangles and Prisms

### 1 Area of Triangle (Warm up)

#### Student Task Statement

Find the area of Triangle A in square centimeters. Show your reasoning.



### 2 Bases and Heights of Triangles

#### Student Task Statement

1. The area of Triangle B is 8 square units. Find the length of $b$. Show your reasoning.
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1. The area of Triangle C is $\frac{54}{5}$ square units. What is the length of $h$? Show your reasoning.
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### 3 Volumes of Cubes and Prisms

#### Student Task Statement

Your teacher will give you cubes that have edge lengths of $\frac{1}{2}$ inch.

1. Here is a drawing of a cube with edge lengths of 1 inch.
* 
	1. How many cubes with edge lengths of $\frac{1}{2}$ inch are needed to fill this cube?
	2. What is the volume, in cubic inches, of a cube with edge lengths of $\frac{1}{2}$ inch? Explain or show your reasoning.
1. Four cubes are piled in a single stack to make a prism. Each cube has an edge length of $\frac{1}{2}$ inch. Sketch the prism, and find its volume in cubic inches.
2. Use cubes with an edge length of $\frac{1}{2}$ inch to build prisms with the lengths, widths, and heights shown in the table.
	1. For each prism, record in the table how many $\frac{1}{2}$-inch cubes can be packed into the prism and the volume of the prism.

| * + prismlength (in)
 | * + prismwidth (in)
 | * + prismheight (in)
 | * + number of $\frac{1}{2}$-inchcubes in prism
 | * + volume ofprism (in3)
 |
| --- | --- | --- | --- | --- |
| * + $\frac{1}{2}$
 | * + $\frac{1}{2}$
 | * + $\frac{1}{2}$
 |  |  |
| * + 1
 | * + 1
 | * + $\frac{1}{2}$
 |  |  |
| * + 2
 | * + 1
 | * + $\frac{1}{2}$
 |  |  |
| * + 2
 | * + 2
 | * + 1
 |  |  |
| * + 4
 | * + 2
 | * + $\frac{3}{2}$
 |  |  |
| * + 5
 | * + 4
 | * + 2
 |  |  |
| * + 5
 | * + 4
 | * + $2\frac{1}{2}$
 |  |  |

* 1. Examine the values in the table. What do you notice about the relationship between the edge lengths of each prism and its volume?
1. What is the volume of a rectangular prism that is $1\frac{1}{2}$ inches by $2\frac{1}{4}$ inches by 4 inches? Show your reasoning.



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