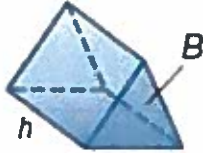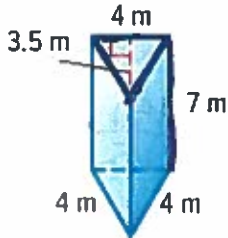# Chapter 10 Lesson 2
Volume of Triangular Prisms

A triangular prism is a prism with parallel and congruent triangular bases. The formula for the volume of any prism is $V = Bh$, where B is the area of the base and h is the height of the prism.

B

h

prism height = connects the bases or the triangles.

$V = Bh_{prism}$ where $B = \frac{1}{2}bh_{base}$

EXAMPLES:

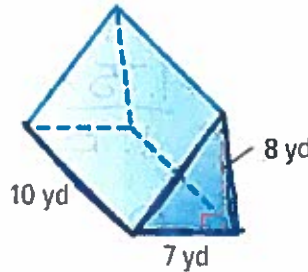|	
4 m, 3.5 m, 7 m, 4 m, 4 m	$B = \frac{1}{2}bh$ $B = \frac{1}{2}(4)(3.5)$ $B = 2(3.5)$ $B = 7 m^2$

$V = Bh$
$V = 7 \cdot 7$
$\boxed{V = 49 m^3}$

10 yd, 8 yd, 7 yd	$B = \frac{1}{2}bh$ $B = \frac{1}{2}(7)(8)$ $B = \frac{1}{2}(56)$ $B = 28 yd^2$

$V = Bh$
$V = 28 \cdot 10$
$\boxed{V = 280 yd^3}$
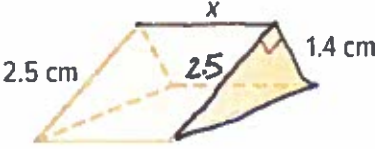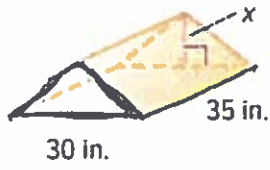
Find the volume of a triangular prism-shaped model with a <u>base</u> of 32 square centimeters and a height of 6 centimeters.

$V = Bh$
$V = 32 \cdot 6$
$\boxed{V = 192 cm^3}$

Find the Missing Dimensions of a Triangular Prism: replace the variables with known measurements. Then solve for the unknown measurement.

$V = 55$ km^3, <u>base</u> length $= 2$ km, <u>base</u> height $= 5$ km, $h = ?$

$B = \frac{1}{2}bh$

$B = \frac{1}{2}(2)(5)$

$B = 1(5)$

$B = 5$ km^2

$V = Bh$

$\frac{55}{5} = \frac{5h}{5}$

$11 = h$

$\boxed{11\,km = h}$

---

x

2.5 cm 25 1.4 cm

$V = 3.5$ cm^3

$B = \frac{1}{2}bh$

$B = \frac{1}{2}(1.4)(2.5)$

$B = \frac{1}{2}(3.5)$

$B = 1.75$ cm^2

$V = Bh$

$\frac{3.5}{1.75} = \frac{1.75h}{1.75}$

$2 = h$

$\boxed{2\,cm = h}$

---

x

35 in.

30 in.

$V = 6,300$ in^3

$V = Bh$

$\frac{6,300}{35} = \frac{B \cdot 35}{35}$

$180 = B$

$B = \frac{1}{2}bh$

$180 = \frac{1}{2} \cdot 30 \cdot h$

$\frac{180}{15} = \frac{15h}{15}$

$12 = h$

$\boxed{12\,in = h}$

PS Persevere with Problems A candy company sells mints in two different containers. Which container shown below holds more mints? Justify your answer.
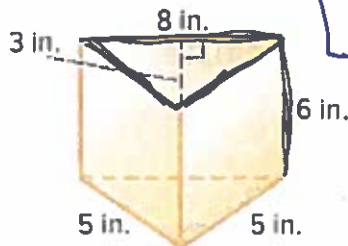
$\boxed{\text{rectangular prism}}$

4 in.

6 in.

6 in.

8 in.

3 in.

6 in.

5 in. 5 in.
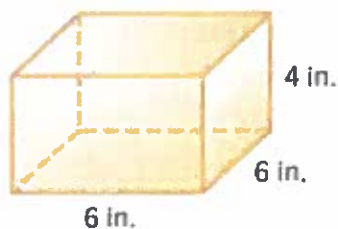
$V = lwh$

$V = 6 \cdot 6 \cdot 4$

$V = 36 \cdot 4$

$\boxed{V = 144\,in^3}$

$B = \frac{1}{2}bh$

$B = \frac{1}{2}(8)(3)$

$B = 4 \cdot 3$

$B = 12\,in$

$V = Bh$

$V = 12 \cdot 6$

$\boxed{V = 72\,in^3}$