b. Step 1: Find "B"!

$B = \frac{1}{2}bh$ $b = 7$ $h = 8$

$= \frac{1}{2}(7)(8)$

$B = 28$

Step 2: Find "V"

$V = Bh$

$= (28)(10)$

$= 280$

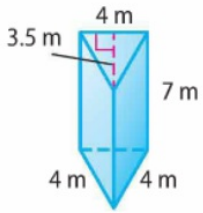
your work.

Got It? Do these problems to find out.

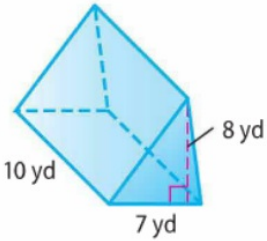
a. _____

b. _____

a.



b.



Step 1: find "B"!

a. $B = \frac{1}{2}(4)(3.5)$

$= (2)(3.5) = 7$

Step 2: find "V"!

$V = Bh$

$= (7)(7)$

$= 49$

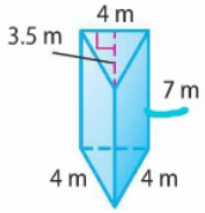
your work.

Got It? Do these problems to find out.

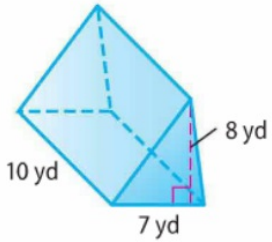
a. _____

b. _____

a.



b.



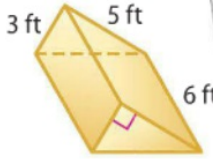
So, the height of the cheese wedge is 9 inches.

Guided Practice

Check

Find the volume of each prism. Round to the nearest tenth if necessary. (Example 1)

1. **45 ft³**



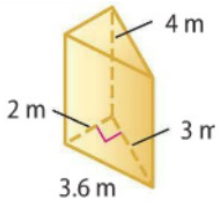
Show your work.

$B = \frac{1}{2}(3)(5)$

$B = 7.5$

$V = Bh = (7.5)(6)$

2. **12 m³**



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

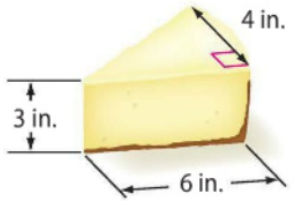
$B = 3$

$V = Bh = (3)(4)$

$= 12$

3. Dirk has a triangular-shaped piece of cheesecake in his lunch. Find the volume of the piece of cheesecake. (Example 2)

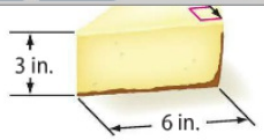
36 in³



4. Find the base length of a shipping box in the shape of

lunch. Find the volume of the piece of cheesecake. (Example 2)

36 in^3



4. Find the base length of a shipping box in the shape of a triangular prism. The shipping box has a volume of 276 cubic feet, a base height of 6.9 feet, and a height of 10 feet. (Examples 3 and 4)

8 ft

$V = \left(\frac{1}{2}bh\right)h$

$276 = \frac{1}{2}(b)(6.9)(10)$

$276 = (5)(6.9)(b)$

$\frac{276}{34.5} = \frac{34.5b}{34.5}$

5. **Building on the Essential Question** How is the area of a triangle related to the volume of a triangular prism?

Sample answer: To find the volume of a triangular prism, you multiply the area of the triangular base *B* times the height *h* of the prism.

276 ÷ 34.5 = 8

8

Independent Practice

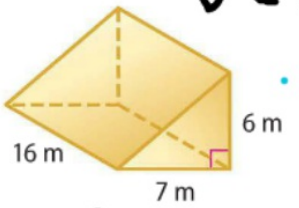
Go online for Step-by-Step Solutions

eHelp

Find the volume of each prism. Round to the nearest tenth if necessary. (Example 1)

1. **336 m^3**

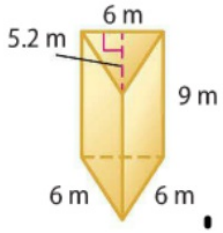
$V = Bh$



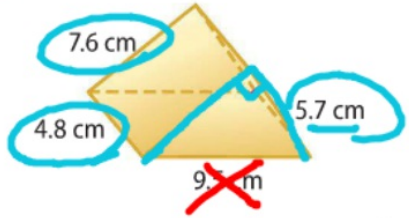
$B = \frac{1}{2}(16)(7)$

$B = (21)(16)$

2. **140.4 m^3**



3 **104.0 cm^3**



21.66 × 4.8 = 103.968

103.968

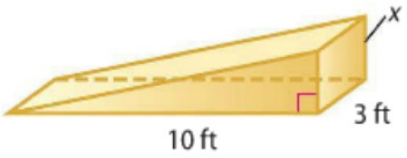
4. A wheelchair ramp is in the shape of a triangular prism. It has a base area of 37.4 square yards and a height of 5 yards. Find the volume of the ramp. (Example 2)

187 yd^3

5 A triangular prism has a height of 9 inches. The triangular base has a base of 3 inches and a height of 8 inches. Find the volume of the prism. (Example 2)

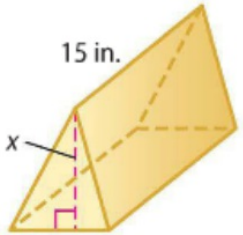
108 in^3

6. $x =$ **2 ft**



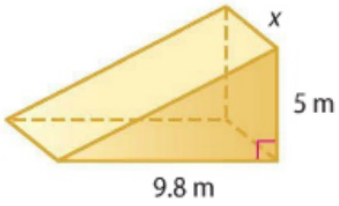
$V = 30 \text{ ft}^3$

7. $x =$ **8 in.**



$V = 390 \text{ in}^3$

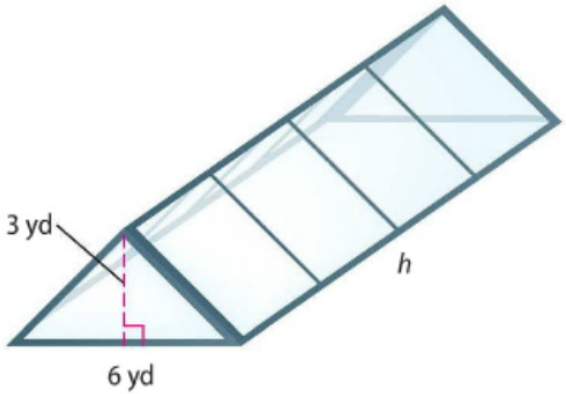
8. $x =$ **4 m**



$V = 98 \text{ m}^3$

9. Mr. Standford's greenhouse has the dimensions shown. The volume of the greenhouse is 90 cubic yards. Find the missing dimension of the greenhouse. (Example 4)

10 yd



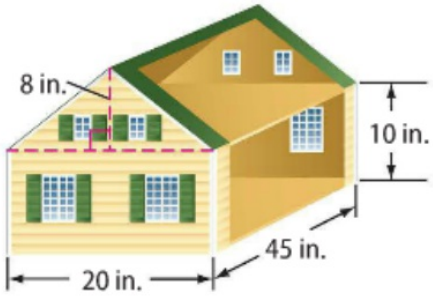
10. CCSS **Be Precise** Darcy built the dollhouse shown.

a. What is the volume of the first floor?

9,000 in^3

b. What is the volume of the attic space?

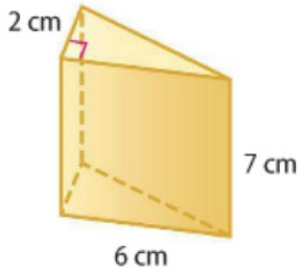
3,600 in^3

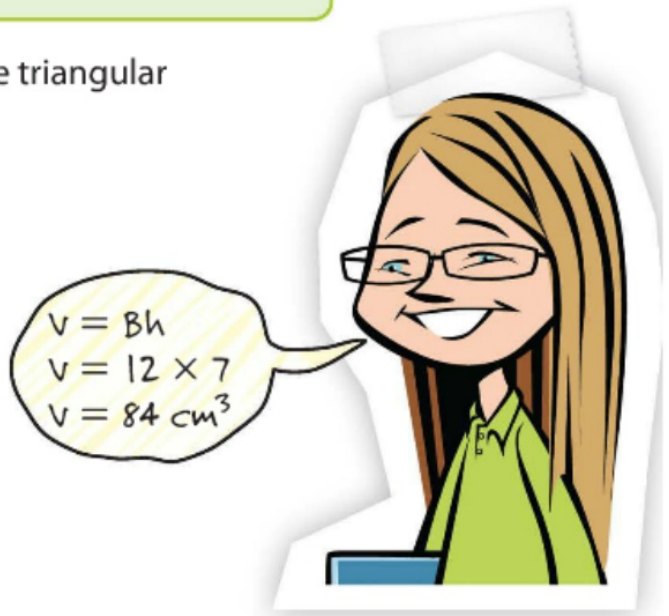


H.O.T. Problems Higher Order Thinking

11. CCSS **Find the Error** Amanda is finding the volume of the triangular prism. Find her mistake and correct it.

To find the base area, Amanda should have multiplied by $\frac{1}{2}$. The base area of the prism is 6 cm^2, not 12 cm^2. So, the volume of the prism is 42 cm^3.

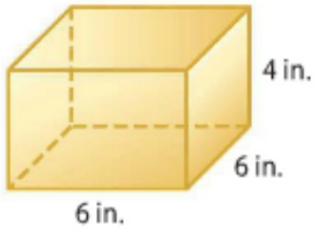


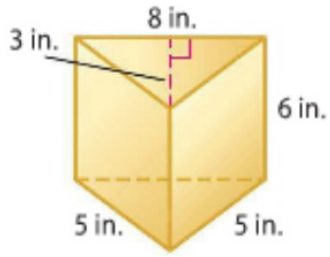


12. CCSS **Identify Repeated Reasoning** A rectangular prism and a triangular prism each have a volume of 210 cubic meters. Find possible sets of dimensions for each prism.

Sample answer: Rectangular prism: length, 7; width, 5; height, 6; triangular prism: area of base, 35 sq. meters; height, 6 meters

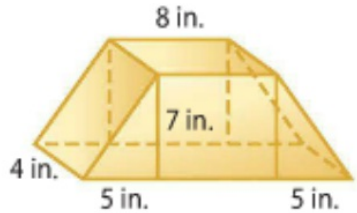
13. **Persevere with Problems** A candy company sells mints in two different containers. Which container shown below holds more mints? Justify your answer.





The rectangular prism will hold more mints than the triangular prism. The rectangular prism has a volume of 144 in^3 while the triangular prism has a volume of 72 in^3.

14. **Persevere with Problems** Explain a method you could use to find the volume of the prism below. Then find the volume of the prism.



Sample answer: The formula for the volume of a prism is $V = Bh$, where B is the area of the base. Since the base is a trapezoid, replace B with $\frac{1}{2}h(b_1 + b_2)$, substitute, and simplify; 364 in^3