



## SKILL 21: Volume of Triangular Prisms and Cylinders

The volume of prisms and cylinders is the product of the area of the base ( $B$ ) and the height ( $h$ ).

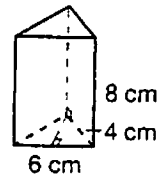
### Example 1

Find the volume of the triangular prism.

**Step 1:** Find the area of the base.  
Use the formula for area of a triangle.

$$B = \frac{1}{2} \times (b \times h)$$

$$= \frac{1}{2} \times (6 \times 4) = \frac{1}{2} \times 24 = 12 \text{ cm}^2$$



**Step 2:** Find the volume.

$$V = B \times h = 12 \times 8 = 96 \text{ cm}^3$$

The volume of the triangular prism is  $96 \text{ cm}^3$ .

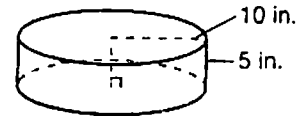
### Example 2

Find the volume of the cylinder.

**Step 1:** Find the area of the base.  
Use the formula for area of a circle. Use 3.14 for  $\pi$

$$B = \pi \times r^2$$

$$= 3.14 \times 10^2 = 3.14 \times 100 = 314 \text{ in}^2$$



**Step 2:** Find the volume.

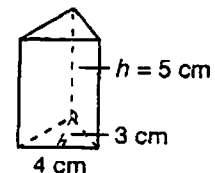
$$V = B \times h = 314 \times 5 = 1,570 \text{ in}^3$$

The volume of the cylinder is  $1,570 \text{ in}^3$ .

### Guided Practice

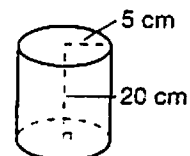
Find the volume of the triangular prism.

1. a. What figure is the base? \_\_\_\_\_
- b. What is the area of the base? \_\_\_\_\_
- c. What is the prism's height? \_\_\_\_\_
- d. What is its volume? \_\_\_\_\_



Find the volume of the cylinder. Use 3.14 for  $\pi$ .

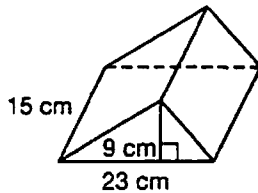
2. a. What figure is the base? \_\_\_\_\_
- b. What is the area of the base? \_\_\_\_\_
- c. What is the height? \_\_\_\_\_
- d. What is the volume? \_\_\_\_\_



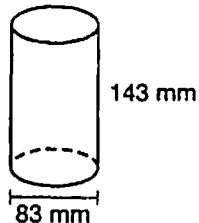
**SKILL 21: Practice**

Find the volume of each solid. Use 3.14 for  $\pi$ . Round each answer to a whole number.

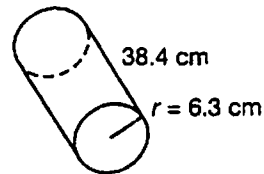
1.



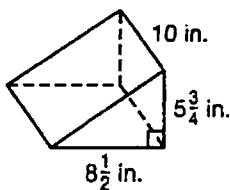
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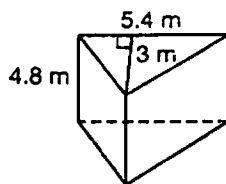
3.



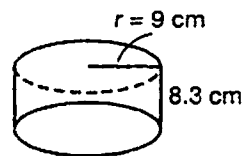
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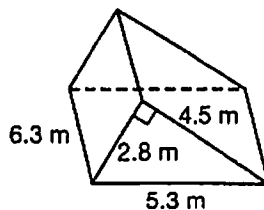
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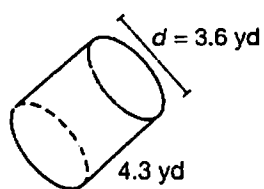
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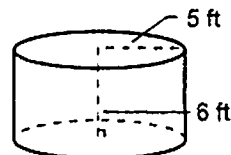
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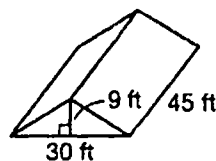
8.



9.

**Solve.**

10. The attic of Karen's house has the shape of the triangular prism shown at the right. Find the volume of the attic.



11. A cylindrical cookie tin has a diameter of 10 in. and a height of  $3\frac{1}{2}$  in. How many cubic inches of cookies can it hold? Round your answer to the nearest cubic inch.

**TEST PREP**

12. Find the volume of the cylinder. Use 3.14 for  $\pi$ .



Skill 21

- A  $37.68 \text{ cm}^3$     C  $75.36 \text{ cm}^3$   
 B  $50.24 \text{ cm}^3$     D  $100.48 \text{ cm}^3$

13. Convert 30 km to the nearest mile. Use  $1 \text{ km} = 0.62 \text{ mi}$ .

Skill 20

- F 48 mi    H 19 mi  
 G 18 mi    J 186 mi