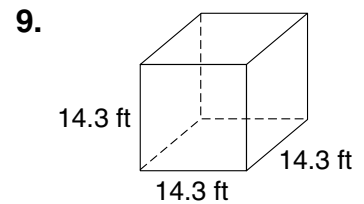
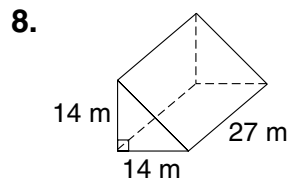
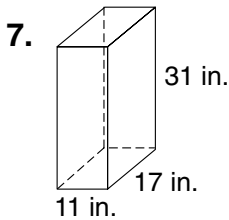
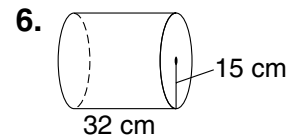
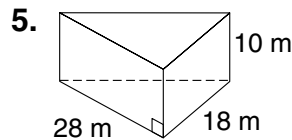
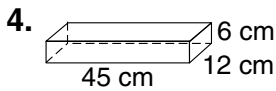
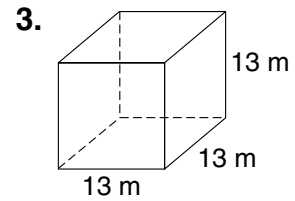
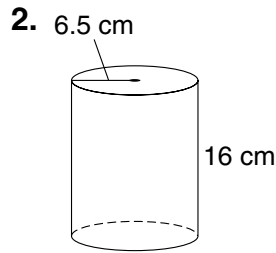
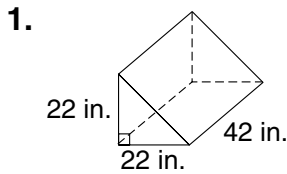


**LESSON**  
**6-6** **Practice B**  
**Volume of Prisms and Cylinders**

Find the volume to the nearest tenth of a unit.



10. A cylinder has a radius of 6 ft and a height of 25 ft. Explain whether tripling the height will triple the volume of the cylinder.
- \_\_\_\_\_
- \_\_\_\_\_

11. Contemporary American building bricks are rectangular blocks with the standard dimensions of about 5.7 cm by 9.5 cm by 20.3 cm. What is the volume of a brick to the nearest tenth of a unit?
- \_\_\_\_\_

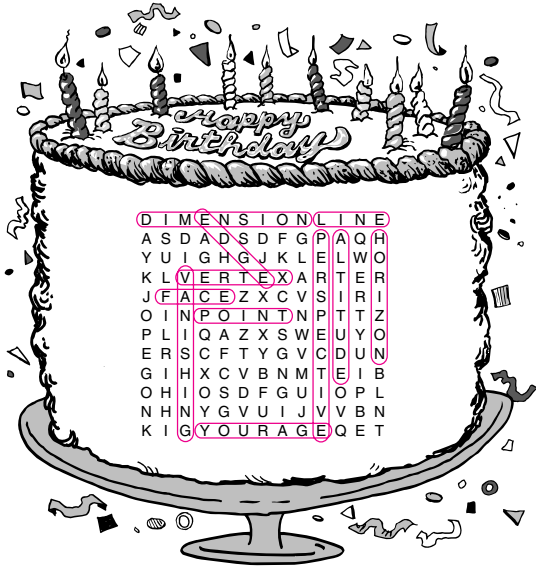
12. Ian is making candles. His cylindrical mold is 8 in. tall and has a base with a diameter of 3 in. Find the volume of a finished candle to the nearest tenth of a unit.
- \_\_\_\_\_

**LESSON** **Puzzles, Twisters & Teasers**

**6-5 A Three-Dimensional State!**

Circle words from the list in the word search (horizontally, vertically or diagonally). Then find a word that answers the riddle. Circle it and write it on the line.

- face edge vertex altitude perspective  
vanishing point horizon line dimension



What goes up but never comes down? YOUR AGE

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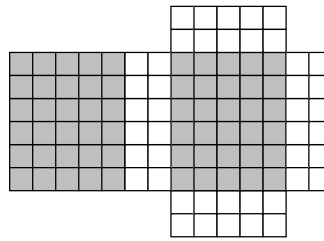
55

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**LESSON** **Exploration Recording Sheet**

**6-6 Volume of Prisms and Cylinders**

The drawing below represents a box that has been unfolded and laid flat. The gray rectangles represent the bottom and the lid of the box. The white rectangles represent the sides of the box.



1. What are the dimensions of the bottom and the lid of the box? 5 by 6
2. What is the height of the box when it is assembled? 2
3. What are the dimensions of each side of the box? 2 by 5 and 2 by 6
4. How many 1-by-1-by-1 cubes will it take to fill the box when it is assembled? (*Hint:* This is the *volume* of the box.) 60

**Think and Discuss**

5. **Explain** how you can determine the volume of a box if you know the dimensions. **Possible answer:**

Multiply the length and the width of the base. Multiply that product by the height.

6. **Discuss** whether you could figure out the height of a box if you know the volume and the dimensions of the base.

Divide the volume by the area of the base.

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57

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**LESSON** **Practice A**

**6-6 Volume of Prisms and Cylinders**

Find the volume to the nearest tenth of a unit. Prism:  $V = Bh$ .

Cylinder:  $V = \pi r^2 h$ . Use 3.14 for  $\pi$ .

1. 180 ft<sup>3</sup>
2. 452.2 in<sup>3</sup>
3. 216 in<sup>3</sup>
4. 120 m<sup>3</sup>
5. 112 in<sup>3</sup>
6. 435.6 ft<sup>3</sup>
7. 120 m<sup>3</sup>
8. 187.5 cm<sup>3</sup>
9. 27 ft<sup>3</sup>

10. A rectangular box measures 6 ft by 8 ft by 2 ft. Explain whether doubling a side from 6 ft to 12 ft would double the volume of the box. **Possible answer:**

The original box has a volume of 96 ft<sup>3</sup>. You could double the volume to 192 ft<sup>3</sup> by doubling any one of the dimensions.

11. A can of vegetables is 4.5 in. high and has a diameter of 3 in. Find the volume of the can to the nearest tenth of a unit. Use 3.14 for  $\pi$ . 31.8 in<sup>3</sup>

12. A telephone pole is 30 ft tall with a diameter of 12 in. Jacob is making a replica of a telephone pole and wants to fill it with sand to help it stand freely. Find the volume of his model, which has a height of 30 in. and a diameter of 1 in., to the nearest tenth of a unit. Use 3.14 for  $\pi$ . 23.6 in<sup>3</sup>

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58

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**LESSON** **Practice B**

**6-6 Volume of Prisms and Cylinders**

Find the volume to the nearest tenth of a unit.

1. 10,164 in<sup>3</sup>
2. 2122.6 cm<sup>3</sup>
3. 2197 m<sup>3</sup>
4. 3240 cm<sup>3</sup>
5. 2520 m<sup>3</sup>
6. 22,608 cm<sup>3</sup>
7. 5797 in<sup>3</sup>
8. 2646 m<sup>3</sup>
9. 2924.2 ft<sup>3</sup>

10. A cylinder has a radius of 6 ft and a height of 25 ft. Explain whether tripling the height will triple the volume of the cylinder. **Possible answer:**

The original cylinder has a volume of 2826 ft<sup>3</sup>. If you triple the height the volume is 8478 ft<sup>3</sup>, which is triple the original volume.

11. Contemporary American building bricks are rectangular blocks with the standard dimensions of about 5.7 cm by 9.5 cm by 20.3 cm. What is the volume of a brick to the nearest tenth of a unit?

1099.2 cm<sup>3</sup>

12. Ian is making candles. His cylindrical mold is 8 in. tall and has a base with a diameter of 3 in. Find the volume of a finished candle to the nearest tenth of a unit.

56.5 in<sup>3</sup>

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59

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