

ACC

key

1. *Application* A cord of firewood is 128 cubic feet. Margaretta has three storage boxes for firewood that each measure 2 feet by 3 feet by 4 feet. Does she have enough space to order a full cord of firewood? A half cord? A quarter cord? Explain.

$\frac{1}{2}$  and a quarter will fit but not a full.

2. Mount Rainier, which is an active volcano in Washington, is 4.392 km tall and about 18 km across its base. Assume that it can be modeled by a cone. Find the volume of rock it would take to fill Mt. Rainier.

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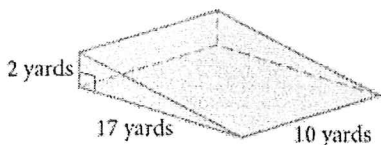
$$V = 372.5 \text{ km}^3$$

3. The Great Pyramid of Khufu is a square pyramid. The lengths of the sides of the base are 755 feet. The original height was 481 feet. The current height is 449 feet. What volume of material has been lost?

lost

$$6,080,266.66 \text{ ft}^3$$

4. *Application* A contractor needs to build a ramp, as shown at right, from the street to the front of a garage door. How many cubic yards of fill will she need?



$$V = 170 \text{ yd}^3$$

### TUNNELS For Exercises 5 and 6, use the following information.

Construction workers are digging a tunnel through a mountain. The space inside the tunnel is going to be shaped like a rectangular prism. The mouth of the tunnel will be a rectangle 20 feet high and 50 feet wide and the length of the tunnel will be 900 feet.

5. What will the volume of the tunnel be?

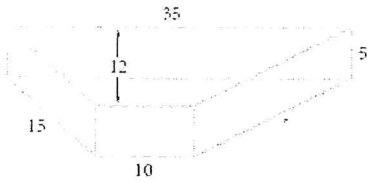
$$V = 900,000 \text{ ft}^3$$

6. If instead of a rectangular shape, the tunnel had a semicircular shape with a 50-foot diameter, what would be its volume? Round your answer to the nearest cubic foot.

$$V = 883,573.0 \text{ ft}^3$$

Directions: Find the Surface Area and Volume of the following figures. Round to the nearest tenth.

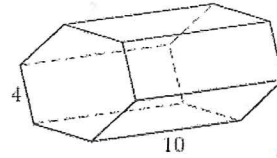
7.



$$SA = 940 \text{ units}^2$$

$$V = 1350 \text{ units}^3$$

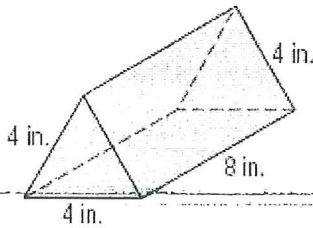
8.



$$SA = 323.1 \text{ units}^2$$

$$V = 415.7 \text{ units}^3$$

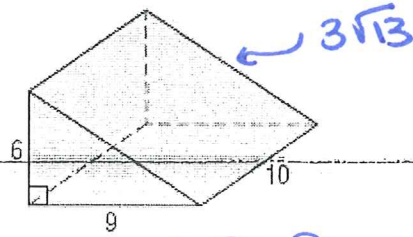
9.



$$SA = 109.9 \text{ in}^2$$

$$V = 55.2 \text{ in}^3$$

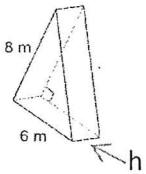
10.



$$SA = 312.2 \text{ units}^2$$

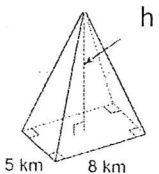
$$V = 270 \text{ units}^3$$

11. The volume of a triangular prism is  $96\text{m}^3$ . The prism has a right triangle base with legs of 8 meters and 6 meters. Find the height of the prism.



$$h = 4\text{m}$$

12. The volume of the rectangular pyramid has a volume of about  $146.67 \text{ km}^3$ . The base of the pyramid is a rectangle that is 5 km by 8 km. Find the height of the pyramid.

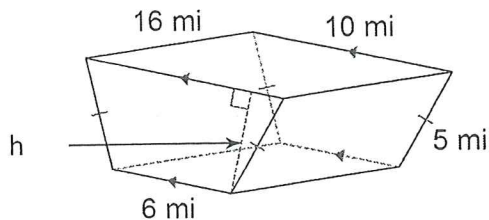


$$h = 11.03 \text{ km}$$

13. The volume of a rectangular prism is 1152 cubic inches and the area of the base is 64 square inches. Find the height of the prism.

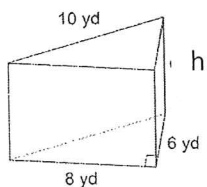
$$h = 18 \text{ in}$$

14. The surface area of the trapezoidal prism is  $489.6 \text{ mi}^2$ . Find the missing length below.



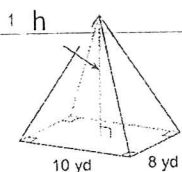
$$h = 4.6 \text{ mi}$$

15. The volume of a triangular prism is  $144 \text{ yd}^3$ . The prism has a right triangle base with legs of 8 meters and 6 meters. Find the height of the prism.



$$h = 6 \text{ yd}$$

16. The volume of the rectangular pyramid has a volume of about  $266.67 \text{ yd}^3$ . The base of the pyramid is a rectangle that is 10 km by 8 km. Find the height of the pyramid.



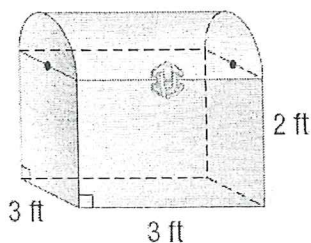
$$h = 10 \text{ yd}$$

17. The volume of a rectangular pyramid is  $84 \text{ in}^3$  and the area of the base is  $12 \text{ in}^2$ . Find the height of the pyramid.

$$h = 21 \text{ in}$$

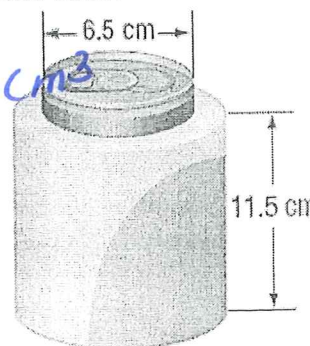
18. **BUILDING** Manny is building a blanket chest for his sister. His design is a composite of a square prism and half of a cylinder. What is the volume of the hope chest?

$$V = 28.6 \text{ ft}^3$$



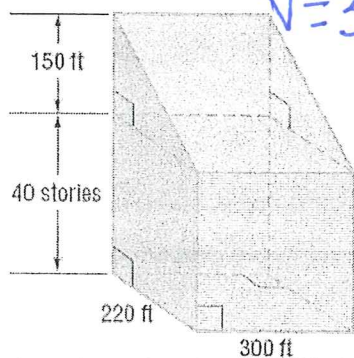
19. If a can is 12 cm tall and fits in the holder which has 1 cm thickness, what is the volume of the entire solid.

$$V = 669.2 \text{ cm}^3$$



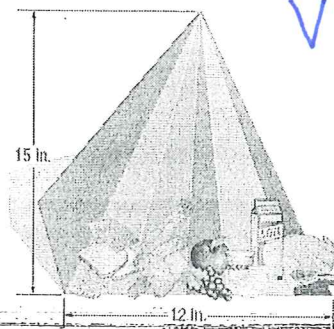


20. **CHALLENGE** A 40-story building is a rectangular prism with a length of 300 feet and a width of 220 feet. On top of the rectangular prism is a triangular prism the base of which has a height of 150 feet and a base of 220 feet. If each story is 11 feet, find the volume of the building.



$$V = 36,894,000 \text{ ft}^3$$

21. **NUTRITION** Rebeca is making a plaster model of the Food Guide Pyramid for a class presentation. The model is a square pyramid with a base edge of 12 inches and a height of 15 inches. Find the volume of plaster needed to make the model.

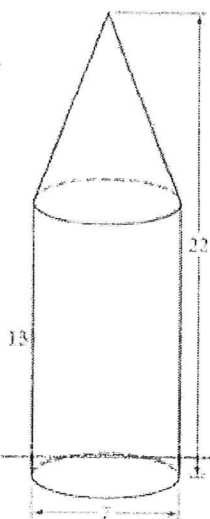


$$V = 2160 \text{ in}^3$$

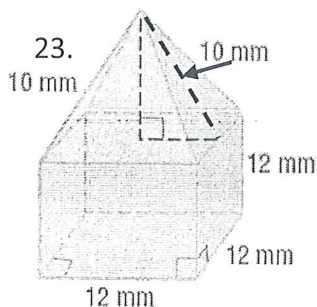
### Composite Figures Practice

Find the surface area and volume for the following solids. Round to the nearest tenth if needed.

22.



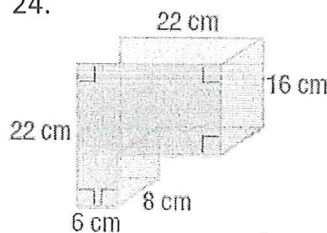
23.



$$SA = 960 \text{ mm}^2$$

$$V = 2112 \text{ mm}^3$$

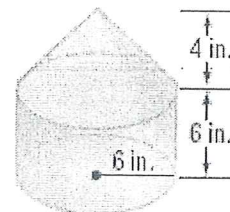
24.



$$SA = 1480 \text{ cm}^2$$

$$V = 3104 \text{ cm}^3$$

25.

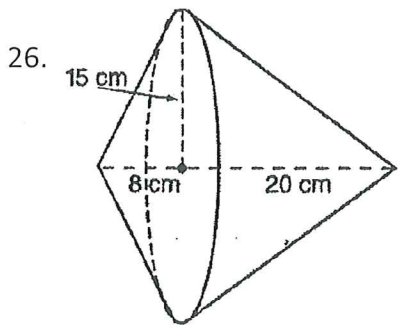


$$SA = 475.2 \text{ in}^2$$

$$V = 829.4 \text{ in}^3$$

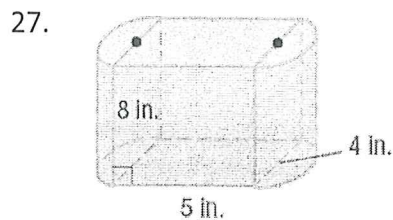
$$SA = 288.1 \text{ u}^2$$

$$V = 615.8 \text{ u}^3$$



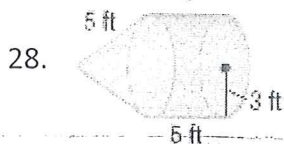
$$SA = 1979.2 \text{ cm}^2$$

$$V = 6597.3 \text{ cm}^3$$



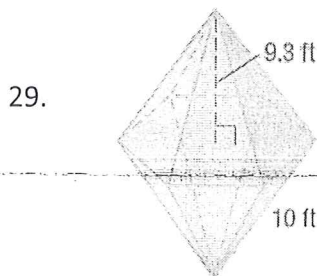
$$SA = 245.7 \text{ in}^2$$

$$V = 260.5 \text{ in}^3$$



$$SA = 169.6 \text{ ft}^2$$

$$V = 179.1 \text{ ft}^3$$



$$SA = 762 \text{ ft}^2$$

$$V = 1610.8 \text{ ft}^3$$

