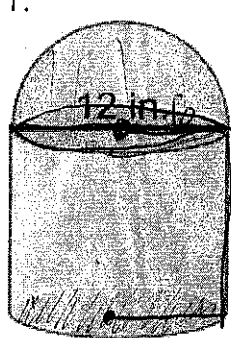
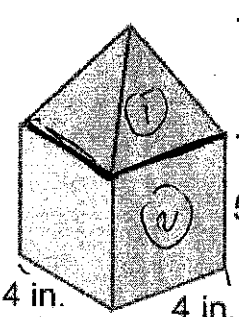


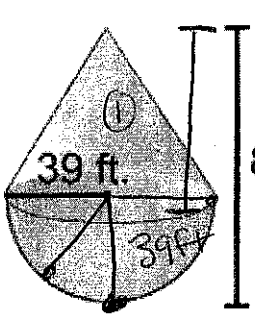
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### Volume of Composite Solids

Find the volume of each of the following composite functions.

1.   $V_{\text{hemisphere}} = \frac{4}{3} \pi (6)^3 = \frac{904.77}{2} = 452.38 \text{ in}^3$   
 Shape 1: hemisphere → half sphere  
 Shape 2: cylinder  
 $V_{\text{cylinder}} = \pi (6)^2 \cdot 13 = 1470.26 \text{ in}^3$   
 Total Volume =  $452.38 + 1470.26 = 1922.64 \text{ in}^3$

2.   $V = \frac{1}{3} B \cdot h = \frac{1}{3} \cdot 4 \cdot 4 \cdot 6 = 32 \text{ in}^3$   
 Shape 1: square pyramid  
 Shape 2: rectangular prism  
 $V = B \cdot h = 4 \cdot 4 \cdot 5 = 80 \text{ in}^3$   
 Total Volume =  $32 + 80 = 112 \text{ in}^3$

3.   $V = \frac{1}{3} B \cdot h = \frac{1}{3} \pi (39)^2 (81) = 66897.07 \text{ ft}^3$   
 Shape 1: cone  
 Shape 2: hemisphere  
 $V = \frac{4}{3} \pi r^3 = \frac{4}{3} \pi (39)^3 = 248474.85 \text{ ft}^3$   
 Total Volume =  $66897.07 + 248474.85 = 315371.92 \text{ ft}^3$

Tennis balls with a 3 inch diameter are sold in cans of three. The can is a cylinder.

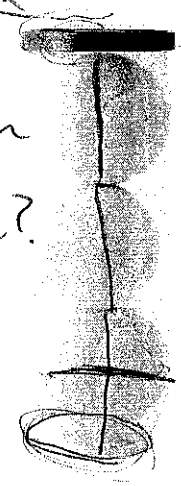
4. What is the volume of one tennis ball?

$$V = \frac{4}{3} \pi r^3 = \frac{4}{3} \pi (1.5)^3 = 14.14 \text{ in}^3$$

5. What is the volume of the cylinder?

$$V = B \cdot h = \pi (1.5)^2 \cdot (9) = 63.61 \text{ in}^3$$

What is volume of empty space?  
 $63.61 - 3(14.14) = 21.19 \text{ in}^3$



Name \_\_\_\_\_

Date \_\_\_\_\_

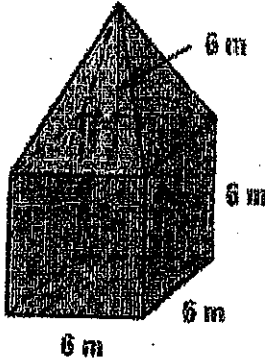
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## Geometry EOC

## Volume of Composite Shapes

Directions: Find the total volume of each composite shape.

1)



$$V_{sp} = \frac{1}{3} B h$$

$$V_{s.p.} = \frac{1}{3} \cdot 6 \cdot 6 \cdot 6$$

$$V_{sp} = 72 \text{ m}^3$$

$$V_{\text{cube}} = B h$$

$$= l \times w \times h$$

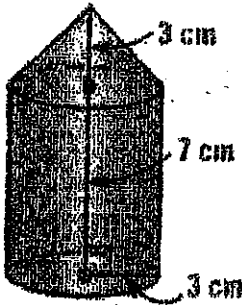
$$= 6 \times 6 \times 6$$

$$V_{\text{square pyramid}} = \underline{72 \text{ m}^3}$$

$$V_{\text{cube}} = \underline{216 \text{ m}^3}$$

$$V_{\text{total}} = \underline{288 \text{ m}^3}$$

2)



$$V_{\text{cone}} = \frac{1}{3} B h$$

$$= \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi (3)^2 (3)$$

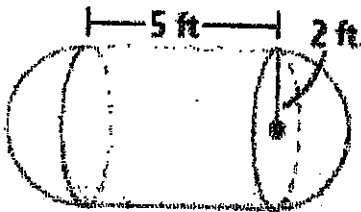
$$V_{\text{cylinder}} =$$

$$V_{\text{cone}} = \underline{28.27 \text{ cm}^3}$$

$$V_{\text{cylinder}} = \underline{197.92 \text{ cm}^3}$$

$$V_{\text{total}} = \underline{226.19 \text{ cm}^3}$$

3)



$$V_{\text{sphere}} = \underline{33.51 \text{ ft}^3}$$

$$V_{\text{cylinder}} = \underline{62.83 \text{ ft}^3}$$

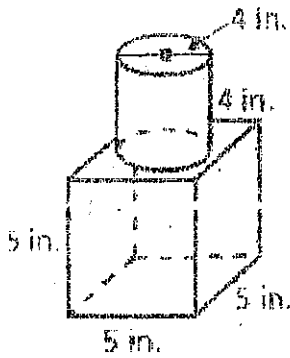
$$V_{\text{total}} = \underline{96.34 \text{ ft}^3}$$

$$V_{\text{sphere}} = \frac{4}{3} \pi (2)^3 =$$

$$V_{\text{cylinder}} = B h = \pi r^2 \cdot h = \pi (2)^2 (5)$$

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4)



$$V_{\text{cyl}} = B \cdot h$$

$$= \pi r^2 \cdot h$$

$$= \pi (2)^2 \cdot 4$$

$$V_{\text{cube}} = B \cdot h$$

$$= l \times w \times h$$

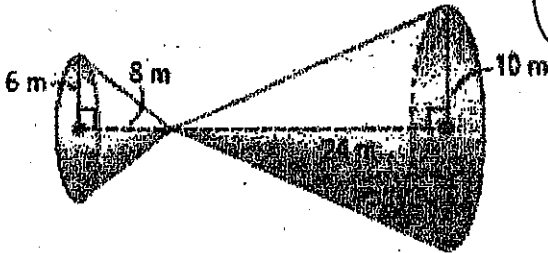
$$= 5 \times 5 \times 5$$

$$V_{\text{cylinder}} = \underline{50.27 \text{ in}^3}$$

$$V_{\text{cube}} = \underline{125 \text{ in}^3}$$

$$V_{\text{total}} = \underline{175.27 \text{ in}^3}$$

5)



$$V_{\text{left}} = \frac{1}{3} B \cdot h$$

$$= \frac{1}{3} \pi r^2 \cdot h$$

$$= \frac{1}{3} \pi (6)^2 \cdot 8$$

$$V_{\text{left cone}} = \underline{301.59 \text{ m}^3}$$

$$V_{\text{right cone}} = \underline{2513.27 \text{ m}^3}$$

$$V_{\text{total}} = \underline{2814.86 \text{ m}^3}$$

$$V_{\text{right}} = \frac{1}{3} B \cdot h$$

$$= \frac{1}{3} \pi r^2 \cdot h$$

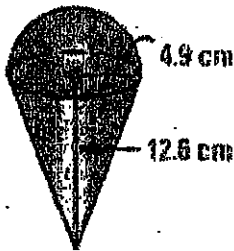
$$= \frac{1}{3} \pi (10)^2 (24)$$

$$V_{\text{hemisphere}} = \underline{246.4 \text{ cm}^3}$$

$$V_{\text{cone}} = \underline{316.8 \text{ cm}^3}$$

$$V_{\text{total}} = \underline{563.2 \text{ cm}^3}$$

6)



$$V_{\text{hemisphere}} = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi (4.9)^3$$

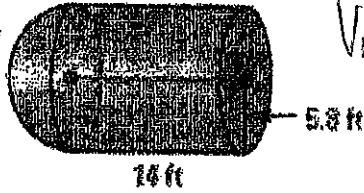
$$= \frac{492.8}{2} = 246.4$$

$$V_{\text{cone}} = \frac{1}{3} B \cdot h$$

$$= \frac{1}{3} \pi r^2 \cdot h$$

$$= \frac{1}{3} \pi (4.9)^2 (12.6)$$

7)



$$V_h = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi (5.8)^3$$

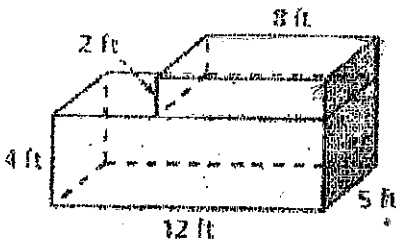
$$= 817.28 = 408.64$$

$$V_{\text{hemisphere}} = 408.64 \text{ ft}^3$$

$$V_{\text{cylinder}} = 1479.56 \text{ ft}^3$$

$$V_{\text{total}} = 1888.2 \text{ ft}^3$$

8)



$$V_{\text{Top}} = B \cdot h$$

$$= l \times w \times h$$

$$= 2 \cdot 8 \cdot 5 =$$

$$V_{\text{Bottom}} = B \cdot h$$

$$= l \times w \times h$$

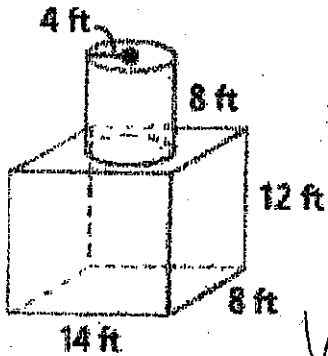
$$= 4 \cdot 12 \cdot 5 =$$

$$V_{\text{top rectangular prism}} = 80 \text{ ft}^3$$

$$V_{\text{bottom rectangular prism}} = 240 \text{ ft}^3$$

$$V_{\text{total}} = 320 \text{ ft}^3$$

9)



$$V_{\text{cyl}} = B \cdot h$$

$$= \pi r^2 \cdot h$$

$$= \pi (4)^2 \cdot 8$$

$$V_{\text{cylinder}} = 402.12 \text{ ft}^3$$

$$V_{\text{rectangular prism}} = 1344 \text{ ft}^3$$

$$V_{\text{total}} = 1746.1 \text{ ft}^3$$

$$V_{\text{prism}} = B \cdot h$$

$$= l \times w \times h$$

$$= 14 \times 8 \times 12$$

$$=$$

**Answer Bank of TOTAL VOLUMES**

All answers are approximate and can vary because of rounding.

96.34	175.27	288	301.59	563.20	2814.86	402.12
1888.20	72	1746.12	279.20	226.19	1479.56	320

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