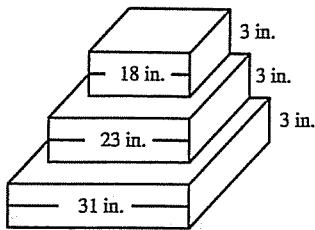


Geometry Chapter 10 Review

Name: SOLUTIONS

Period: _____

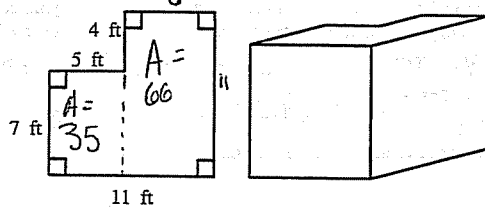
1. Three right rectangular pie boxes are stacked as shown in the diagram. Find the volume of the entire stack if all the prism bases are squares.



$TOP: 18 \times 18 \times 3 = 972$
 $Middle: 23 \times 23 \times 3 = 1587$
 $BOTTOM: 31 \times 31 \times 3 = 2883$

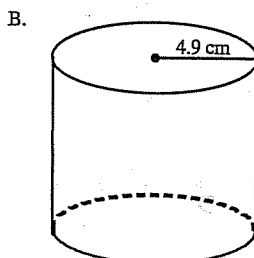
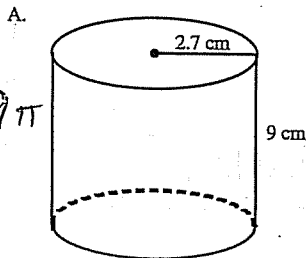
$2883 + 1587 + 972 = 5442 \text{ in}^3$

2. The base of a right solid that has a height of 12 feet is shown. Find the volume of the solid.



$V = B \cdot H$
 $B = 35 + 66 = 101$
 $V = 101 \times 12 = 1212 \text{ ft}^3$

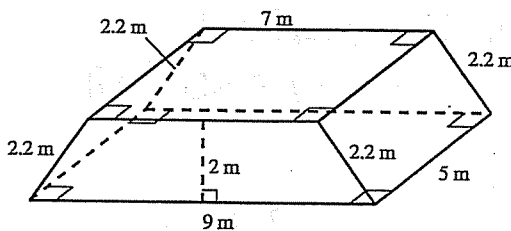
3. Which cylinder has a larger volume? How much larger? Write your answer in terms of π .



$V = B \cdot H$
 $B = \pi(2.7)^2 = 7.29\pi$
 $V = 7.29\pi \cdot 9 = 65.61\pi \text{ cm}^3$

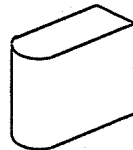
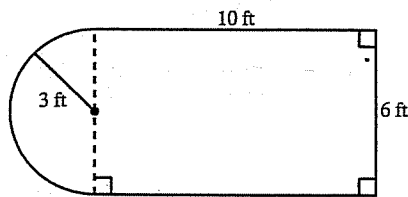
$V = B \cdot H$
 $B = \pi \cdot 4.9^2 = 24.01\pi$
 $V = 24.01\pi \times 4 = 96.04\pi \text{ cm}^3$
 Cylinder B is bigger, by
 $96.04\pi - 65.61\pi = 30.43\pi \text{ cm}^3$

4. Find the volume of the figure.



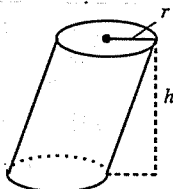
$V = B \cdot H$
 $B = \frac{1}{2} \cdot (7+9) \cdot 2 = 16$
 $V = 16 \cdot 5 = 80 \text{ cm}^3$

5. Find the volume of the figure with base shown at left. The height of the figure is 9 feet.



prism: $V = B \cdot H = 6 \cdot 10 \cdot 9 = 540 \text{ ft}^3$
 half cylinder: $V = B \cdot H$, then divide by 2.
 $B = \pi \cdot 3^2 = 9\pi$
 $V = 9\pi \cdot 9 = 81\pi \text{ ft}^3$
 Divide by 2 $\Rightarrow 40.5\pi$
 Total volume = $540 + 40.5\pi \text{ ft}^3$

6. The oblique cylinder below has a height of 7.4 inches and a radius of 3.8 inches. Find the volume of the cylinder. Use 3.14 for π .



$V = B \cdot H$
 $B = \pi \cdot 3.8^2 = 14.44\pi$

$V = 14.44\pi \cdot 7.4 = 106.856\pi$
 $\approx 335.53 \text{ in}^3$

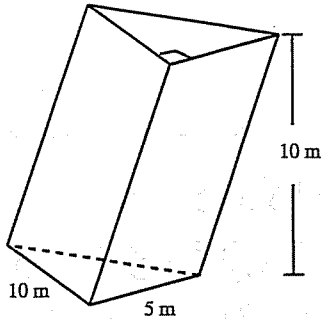
7. Find the volume of the prism.

[A] 500 m^3

[B] 250 m^3

[C] 25 m^3

[D] 125 m^3



$$V = BH$$

$$B = \frac{1}{2} \cdot 5 \cdot 10$$

$$= 25$$

$$V = 25 \cdot 10$$

$$= 250 \text{ m}^3$$

$$V = \frac{1}{3} B \cdot H$$

$$= \frac{1}{3} \cdot 62.5 \cdot 21.7$$

$$= 452.1 \text{ mm}^3$$

8. The base of a rectangular pyramid has an area of 62.5 square millimeters. The height of the pyramid is 21.7 millimeters. Find the volume of the pyramid to the nearest tenth.

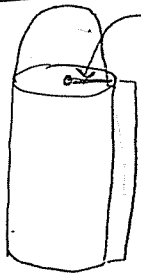
[A] 135.6 mm^3

[B] 452.1 mm^3

[C] 84.2 mm^3

[D] 1356.3 mm^3

9. A thermos is in the shape of a cylinder with a hemispherical cap. The height of the whole thermos (both cylinder and cap) is 25.3 centimeters, while the diameter of the cap is 8.4 centimeters. What is the volume of the thermos, including the cap? Use $\pi = 3.14$ and round to the nearest hundredth.



$r = 4.2$

$25.3 - 4.2 = 21.1$

Cylinder: $V = \pi r^2 h$

$$= \pi (4.2)^2 \cdot 21.1 = 1169.31$$

hemisphere: $V = \frac{4}{3} \pi r^3$

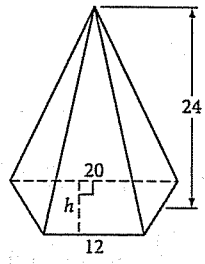
$$= \frac{4}{3} \pi (4.2)^3 = 98.784\pi$$

Divide by 2:

$$49.392\pi \approx 155.17$$

10. Find the volume of each solid. All given measurements are in centimeters. Round your answers to the nearest cm^3 .

$h = 8 \text{ cm}$
Volume =
(The base is a trapezoid.)



$$V = \frac{1}{3} BH$$

$$B = \frac{1}{2} (20 + 12) \cdot 8$$

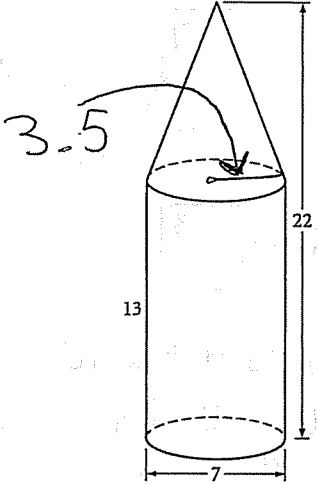
$$= 128$$

$$V = \frac{1}{3} \cdot 128 \cdot 24 = 1024 \text{ cm}^3$$

Total: add to get

$$1324.48 \text{ cm}^3$$

11. Find the volume of the solid below. Measurements are in centimeters.



cone: $V = \frac{1}{3} BH$

$$B = \pi (3.5)^2 = 12.25\pi$$

$$V = \frac{1}{3} \cdot 12.25\pi \cdot 9 = 36.75\pi$$

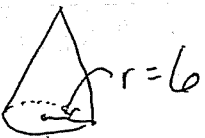
cylinder: $V = B \cdot H$

$$B = \pi \cdot 3.5^2 = 12.25\pi$$

$$V = 12.25\pi \cdot 13 = 159.25\pi$$

TOTAL = $36.75\pi + 159.25\pi = 196\pi \text{ cm}^3$

12. All given measurements are in centimeters. Find the volume of a cone with a diameter of 12 cm and a height of 15 cm.

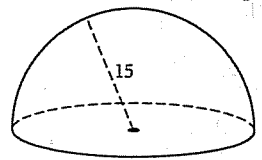


$$V = \frac{1}{3} BH$$

$$B = \pi \cdot 6^2 = 36\pi$$

$$V = \frac{1}{3} \cdot 36\pi \cdot 15 = 180\pi \text{ cm}^3$$

13. Find the volume of the hemisphere. The radius is in centimeters.



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

$$= \frac{4}{3} \cdot \pi \cdot 15^3 = 4500\pi \text{ cm}^3$$

Divide by 2 to get: $2250\pi \text{ cm}^3$