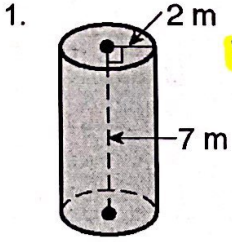


Name Key

Volume Cylinders, Pyramids, Cones, and Spheres Practice

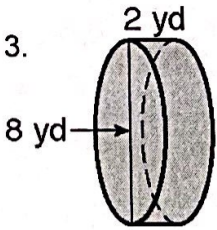
Find the volume of each cylinder. Give your answers both in terms of π and rounded to the nearest tenth.



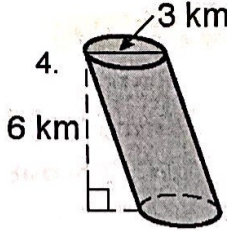
$V = 28\pi \approx 88 \text{ m}^3$

2. a cylinder with diameter 20 in. and height 2 in.

$V = 200\pi \approx 628.3 \text{ in}^3$



$V = 32\pi \approx 100.5 \text{ yd}^3$



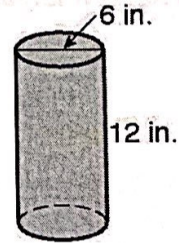
$V = \frac{27\pi}{2} \approx 42.4 \text{ km}^3$

5. A cylindrical juice container has the dimensions shown. About how many cups of juice does this container hold?

(Hint: 1 cup $\approx 14.44 \text{ in}^3$)

$V = 108\pi \approx 339.3 \text{ in}^3$

23.5 cups



6. A cylinder has a radius of 6 inches and a volume of $36\pi \text{ in}^3$. What is the cylinder's height?

$h = 1 \text{ in}$

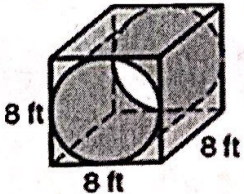
7. A cylinder's base has a circumference of $18\pi \text{ ft}$. The cylinder's height is 10 ft. What is its volume?

$V = 810\pi \approx 2544.7 \text{ ft}^3$

$C = 18\pi$
 $2\pi r = 18\pi$
 $r = 9$

$V = \pi(9)^2 \cdot 10 = 810\pi$

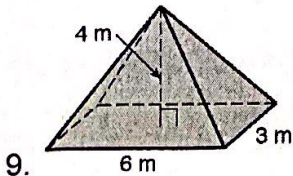
8. The cylinder below is inscribed in a cube. Find the volume of the cylinder.



$V = 128\pi \approx 402.1 \text{ ft}^3$

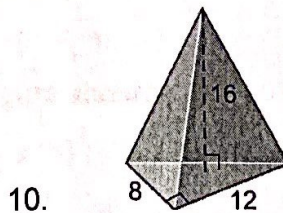
$512 - \underbrace{128\pi}_{\pi(4)^2(8)}$

Find the volume of each pyramid.



the rectangular pyramid

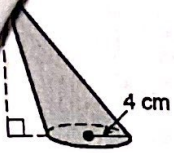
$V = 24 \text{ m}^3$



the right triangular pyramid

$V = 256 \text{ units}^3$

Find the volume of each cone. Give your answers both in terms of π and rounded to the nearest tenth.



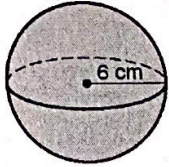
$$V = 80\pi \approx 251.3 \text{ cm}^3$$

12. a cone with diameter 15 yd and height 10 yd

$$V = \frac{375\pi}{2} \approx 589 \text{ yd}^3$$

Find each measurement. Give your answers in terms of π .

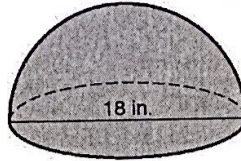
13.



the volume of the sphere

$$V = 288\pi \text{ cm}^3$$

14.



the volume of the hemisphere

$$V = 486\pi \text{ in}^3$$

15. Find the radius of a sphere with a volume of $36,000\pi \text{ mm}^3$.

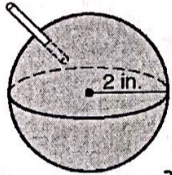
$$r = 30 \text{ mm}$$

$$\frac{4}{3}\pi r^3 = 36000\pi$$

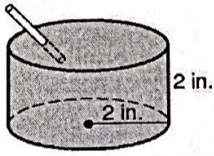
$$r^3 = 27000$$

16. Margot is thirsty after a 5-km run for charity. The organizers offer the containers of water shown in the figure. Margot wants the one with the greater volume of water. Tell which container Margot should pick.

Sphere

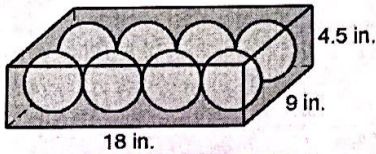


$$V = 10.6\pi \text{ in}^3$$



$$V = 8\pi \text{ in}^3$$

17. Eight racquet balls fit snugly in a box 18 inches long, 9 inches wide, and 4.5 inches deep. If each ball has a diameter of 4.5 inches, what is the volume of the space around the balls? Round to the nearest tenth.



$$V = 347.4 \text{ in}^3$$

$$r = 2.25$$

$$V = \frac{4}{3}\pi (2.25)^3 \approx 47.7$$

$$47.7 \times 8 = 381.6 \text{ in}^3$$

$$\text{box } V = 729 \text{ in}^3$$

$$729 - 381.6 = 347.3$$

18. The figure shows a can of three balls. The can is just large enough so that the tennis balls will fit inside with the lid on. The diameter of each ball is 4 in.

a. Find the total volume of the can.

$$V = 150.8 \text{ in}^3$$

$$V = \pi (2)^2 (12) = 48\pi \approx 150.8$$

b. Find the volume of empty space inside the can.

$$V = 50.3 \text{ in}^3$$

$$V = \frac{4}{3}\pi (2)^3 = \frac{32\pi}{3} \approx 33.5 \times 3 = 100.5$$

$$\begin{array}{r} 150.8 \\ - 100.5 \\ \hline 50.3 \end{array}$$



19. Find the volume of the shaded solid in the figure shown. Give your answer in terms of π .

$$V = 98\pi \text{ in}^3 \approx 307.9 \text{ in}^3$$

$$\frac{1}{3}\pi (5)^2 (15) = 125\pi$$

$$\frac{1}{3}\pi (3)^2 (9) = 27\pi$$

$$\frac{125\pi - 27\pi}{1} = 98\pi$$

