

Name: _____
8.G.9

Date: _____

_____1. A water tank is in the shape of a right circular cylinder with a height of 20 feet and a volume of 320π cubic feet. What is the diameter, in feet, of the water tank? (2013)

A. 16

B. 10

C. 8

D. 4

_____2. A cone has a radius of 1.2 inches and a height of 2.9 inches. What is the volume, to the nearest tenth of a cubic inch, of the cone? (calculator allowed) (2015)

A. 3.6

B. 4.4

C. 10.6

D. 13.1

_____3. A cylinder has a diameter of 14 centimeters and a volume of 112π cubic centimeters. What is the height, in centimeters, of the cylinder? (calculator allowed) (2015)

A. 16

B. 4

C. $\frac{16}{7}$

D. $\frac{4}{7}$

_____4. An above-ground swimming pool in the shape of a cylinder has a diameter of 18 feet and a height of 4.5 feet. If the pool is filled with water to 6 inches from the top of the pool, what is the volume, to the nearest cubic foot, of the water in the pool? (calculator allowed) (2015)

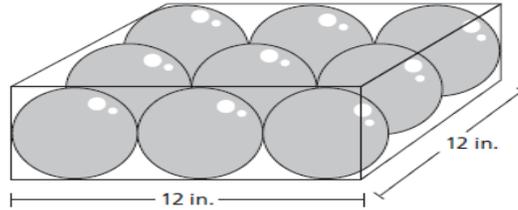
A. 226

B. 452

C. 1,018

D. 4,072

14. A box contains 9 identical glass spheres that are used to make snow globes. The spheres are tightly packed, as shown below. (2014)



What is the total volume, in cubic inches, of all 9 spheres? Round your answer to the nearest tenth of a cubic inch.

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

Show your work.

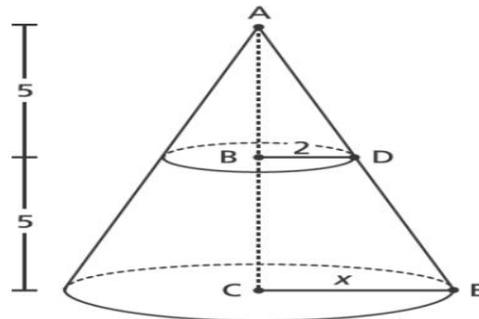
Answer _____ cubic inches

15. A cylinder and a cone have the same volume. The cylinder has a radius of 2 inches and a height of 3 inches. The cone has a radius of 3 inches. What is the height of the cone? (2017)

Show your work

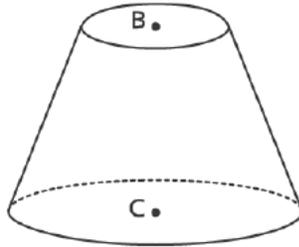
Answer _____ inches

16. The circular base of the cone below has center C. Another circle, with center B, is parallel to the base. This circle is the base of a smaller cone with height AB. The measurements in the diagram are given in inches.



Triangle ABD is similar to triangle ACE.

The smaller cone is removed to create a new object, as shown below.



What is the volume of this new object? Round your answer to the nearest tenth. (2017)

Show your work

Answer _____ cubic inches

17. Two students, Matt and Billy, each calculated the volume of a spherical ball with a diameter of 15 centimeters. Their work is shown below.

MATT'S WORK

Step 1: $V = \frac{4}{3} \pi r^3$

Step 2: $V = \frac{4}{3} \pi (15)^3$

Step 3: $V = \frac{4}{3} \pi (3375)$

Step 4: $V = 4500\pi$

BILLY'S WORK

Step 1: $V = \frac{4}{3} \pi r^3$

Step 2: $V = \frac{4}{3} \pi (7.5)^3$

Step 3: $V = \frac{4}{3} \pi \left(\frac{3375}{8} \right)$

Step 4: $V = \frac{1125}{2} \pi$

Which student made an error and what error did that student make? (2019)

Explain your answer.

18. At the beach, a child uses a container in the shape of a cylinder to build a sand castle. The child completely fills the container with sand.

- The container has a height of 10 inches and a diameter of 12 inches.
- There are 231 cubic inches in one gallon of sand.

What is the approximate volume of sand, in gallons, in the container? Round your answer to the nearest gallon. (2022)

Show your work.

Answer _____ gallons