

Pre-Algebra, Unit 14 Practice Test: Volume

Name:

Date:

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1. For each of the following figures, state the formula for finding their volume and sketch an example.

a. cylinder

b. cone

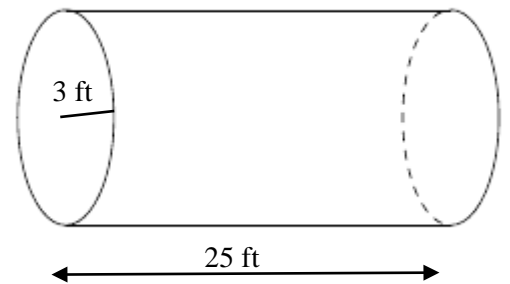
c. sphere

2. Assume that a cylinder, cone and sphere have radius and height of equal measurements.

(a) How does the volume of a cone compare to the volume of a cylinder?

(b) How does the volume of a cone compare to the volume of a sphere?

3. (SBAC) The figure shows the dimensions of a tanker truck. The tank forms a cylinder with a length of 25 feet and a radius of 3 feet. What is the volume, in cubic feet, of the tank? Leave your answer in terms of  $\pi$ .

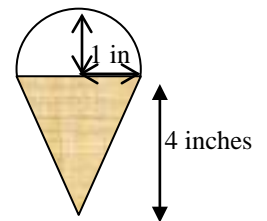


- (A)  $25\pi$
- (B)  $75\pi$
- (C)  $150\pi$
- (D)  $225\pi$

4. (SE/SBAC) The volume of a cylinder is  $144\pi \text{ in}^3$  and the radius is 4 in. What is the height of the cylinder?

- (A) 3 in.
- (B) 6 in.
- (C) 9 in.
- (D) 12 in.

5. (SE/SBAC) An ice cream cone has a height of 3 inches and a radius of 1 inch as shown. Ice cream completely fills the cone, as well as the hemisphere above the cone. Which is closest to the total volume, in cubic inches, of the ice cream? Leave your answer in terms of  $\pi$ .

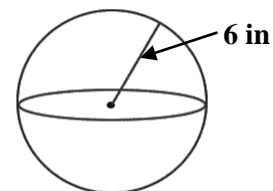


- (A)  $\frac{5}{3}\pi$
- (B)  $\frac{7}{3}\pi$
- (C)  $\frac{14}{3}\pi$
- (D)  $\frac{16}{3}\pi$

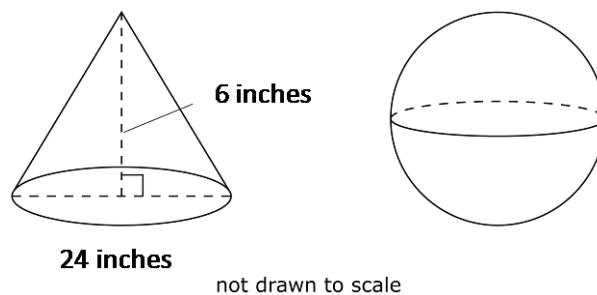
6. (SE) A cone has a diameter of 8 cm and a height of 4 cm. If the height is cut in half then the volume is:
- A. One-half as large
  - B. One-fourth as large
  - C. Twice as large
  - D. The same

7. (SE) What is the volume of a hemisphere with a diameter of 12 cm?
- A.  $288\pi \text{ cm}^3$
  - B.  $144\pi \text{ cm}^3$
  - C.  $72\pi \text{ cm}^3$
  - D.  $36\pi \text{ cm}^3$

8. (SBAC) A ball is shown in the picture. What is the volume of the ball in cubic inches? Round your answer to the nearest hundredth.



9. (SBAC) The cone and the sphere have equal volumes. What is the radius of the sphere?



10. (SBAC) A cylindrical tank has a radius of 2 feet and a height of 14 feet. If the tank is filled at a rate of 10 cubic feet per minute, about how many minutes will it take to completely fill the tank without overflowing it? Round your answer to the nearest minute.