

Assignment

Write

Describe a similarity and a difference between each term.

1. lateral surface area and total surface area
2. radius of a sphere and diameter of a sphere

Remember

The volume formula for a cone is $V = \frac{1}{3}\pi r^2 h$, where r is the radius of the base and h is the height of the cone. The volume formula for a pyramid is $V = \frac{1}{3}Bh$, where B is the area of the base and h is the height of the pyramid.

The lateral surface area of a three-dimensional figure is the sum of the areas of its lateral faces. The total surface area of a three-dimensional figure is the sum of the areas of its bases and lateral faces.

The volume formula for a sphere is $V = \frac{4}{3}\pi r^3$, where r is the radius of the sphere. The formula for the total surface area of a sphere is $SA = 4\pi r^2$, where r is the radius of the sphere.

Practice

1. The Luxor Hotel in Las Vegas is a replica of the Great Pyramid at Giza. The Luxor's base is a square with a side length of 600 feet. Each lateral face has a slant height of 460 feet, and the hotel is 350 feet tall.
 - a. What is the volume of the Luxor Hotel?
 - b. What is the lateral surface area of the Luxor Hotel?
2. Your municipality is replacing the storage tanks in the community. Which plan provides the greater total capacity?

Plan 1: Install one cylindrical tank that is 150 feet tall and has a radius of 50 feet.

Plan 2: Install two cylindrical tanks that are 75 feet tall. One cylindrical tank has a radius of 30 feet, and one tank has a radius of 25 feet.

Use 3.14 for π . Round your answers to the nearest tenth, if necessary.
3. A traffic cone has a radius of 9 inches and a height of 30 inches. What is the volume of this traffic cone? What is its lateral and total surface area if the slant height of the traffic cone is approximately 31 inches?
4. Today's deal at the ice cream shop is a mini cone with one scoop of ice cream.
 - a. A mini ice cream cone has a diameter of 3.5 centimeters and a height of 6 centimeters. How much ice cream fits in the cone?
 - b. One scoop of ice cream has the same diameter as the cone, 3.5 centimeters. What's the volume of 1 scoop of ice cream?
5. A soccer ball has a circumference of 70 centimeters at its widest point. What is the volume and total surface area of the soccer ball?

Stretch

A gumball machine is shown in the figure. The diameter of the sphere with gumballs on the top of the machine is 12 inches. The cylinder with gumballs under the sphere is 6 inches in diameter and 7 inches tall. If a gumball is 1 inch in diameter, approximately how many gumballs will fit in this machine? Use 3.14 for π and assume that due to the spacing of the gumballs, only 75% of the total capacity for gumballs will be used.

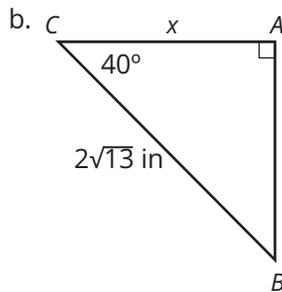
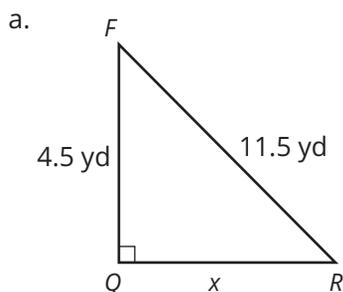


Review

1. Translate the triangle in a diagonal direction to create a second triangle. Identify the name of the solid formed by this translation.



2. Solve for x in each triangle.



3. Use $\triangle XYZ$ to complete the table of ratios.

Reference Angle	sin	cos	tan	csc	sec	cot
x	$\frac{\sqrt{3}}{2}$					
z						

