

Collaborated With:
(No more than 3 other people)

SHOW ORGANIZED WORK IN THIS PACKET on each problem for credit.

This is just like a Written Assignment, having answers without proper support is unacceptable.

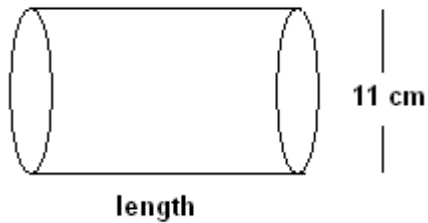
This must be submitted by the end of class for credit.

As such, use your time efficiently! If you get stuck, move on and come back.

(Figures are not necessarily drawn to scale.)

***There are 8 total problems and one bonus. Each Problem is worth 5 points.
The assignment is worth 40 Points, and a maximum score would be 45 / 40.***

- 1.) The right cylinder below has a surface area of 1225 square centimeters. Find its length and volume.



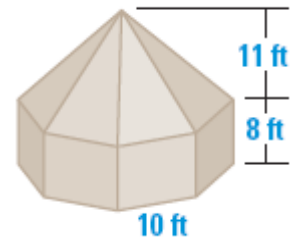
Length = _____

Volume = _____

- 2.) A road-salt storage building is made of a right regular octagonal pyramid and a regular octagonal prism (on bottom) as shown in the figure. Find the volume of salt the building can hold and the surface area of the outside of the structure. (Only consider the walls and roof; do not include the floor!)

Surface Area = _____

Volume = _____



- 3.) An ice cream cone consists of a cone with half a sphere on top. If the radius of the sphere of ice cream is 4 inches, and the height of the cone is 7 inches, find the surface area and volume of the shape formed by the cone and ice cream combined. (It is a right cone.)

Surface Area = _____

Volume = _____



- 4.) Tennis balls come in a cylindrical container of height 9 inches. Let's assume that 3 stacked tennis balls fit inside *perfectly*. What percentage of the cylinder's volume do the balls occupy? Round to the nearest whole number percentage.

Percentage = _____

- 5.) Find the surface area exposed involving a roll of paper towel if the roll is 18" tall, the paper extends 9" (in diameter) and the cardboard roll itself is 3" in diameter. Also find the volume of the figure. (Both the paper and the cardboard would count toward surface area.)

Surface Area = _____

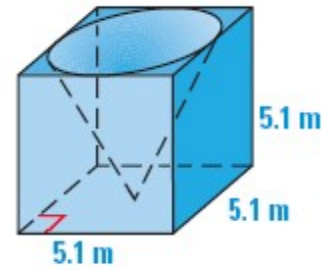
Volume = _____



- 6.) Find the surface area and volume of the figure below of the solid block of wood if the cone is removed.
(It is a right cone.)

Surface Area = _____

Volume = _____



- 7.) A sewer pipe (cylinder) of diameter 10 feet has water in it a depth of 1 foot in the center.
What is the volume of water in the 500 foot long pipe?

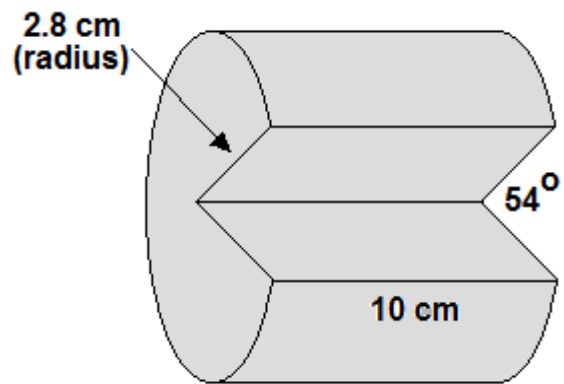
Volume = _____



- 8.) Find the surface area and volume of the figure below, which involves a solid right cylinder with a wedge cut out.

Surface Area = _____

Volume = _____



Bonus!

A giant Frosty the Snowman is made of three spheres of snow. The bottom sphere is 60 feet in diameter, the middle is 50 feet in diameter, and the top is 40 feet in diameter. As frosty melts, the water drains into an underground conical tank (radius 5 feet at the biggest point). If ten linear feet of snow translates to one linear foot of water, how deep must the cone be to completely hold Frosty's liquefied remains, without any excess room?

[Hint: Be careful! As a hint... watch out for units! There would NOT be ten cubic feet of snow in every one cubic foot of water. For example, there are 144 square inches in 1 square foot.]

