

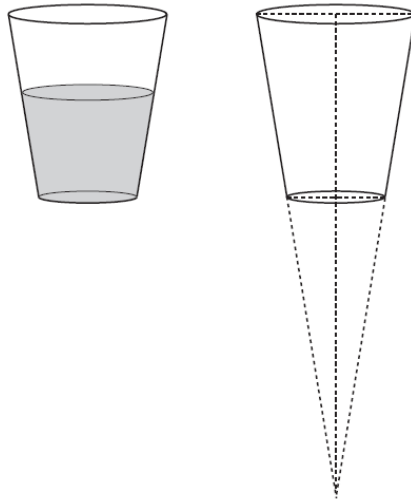
Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Class: \_\_\_\_\_

Geometry  
Unit 9  
EC

To be eligible to receive extra credit on the unit test you must have a score below 75. To receive extra credit you must score an 80% or higher on this assignment (anything lower results in no extra credit). If you earn extra credit is calculated in the following manner:  $(75 - \text{Old Test Score})/3$ . No rounding up. Multiply that number by 2 and add it to your old test score to get your new test score. This assignment will not be accepted late for any reason other than missing the day of school it is due in which case it must be turned in the next day you are in school even if you do not have class.

1) [2] If a sphere has a surface area of 1000 cubic inches what is the radius of the sphere to the nearest tenth of an inch?

2) [4] A water glass can be modeled by a truncated right cone (a cone which is cut parallel to its base) as shown below.



The diameter of the top of the glass is 3 inches, the diameter at the bottom of the glass is 2 inches, and the height of the glass is 5 inches.

Determine and state, to the *nearest tenth of a cubic inch*, the volume of the water glass.

3) [4] If a cone has a volume of 200 cubic meters and a height of 7m what would its surface area be to the nearest tenth?

4) [2] If a sphere has a circumference of 28ft what would its surface area to the nearest tenth be?

5) [3] If a cube has a volume of 512 cubic inches what would its surface area be?

6) [3] If the lateral area of a cone is 175 square meters and the slant height is 8m what is the volume of the cone to the nearest tenth?

7) [5] A cube has a pyramid on each of its faces. The pyramids have slant height 27in and an angle of elevation (between the slant height and the base) of 38 degrees. Find the total volume of this figure.

8) [3] A triangle prism has an isosceles triangle for a base. The triangle has a vertex angle of 52 degrees and a leg that is 17m. The prism is 22m tall. What is the volume of this figure?

9) [6] Using the prism from #8, a rectangular prism is added to the rectangle that doesn't have an identical pair in the triangular prism. The rectangular prism is twice as tall as the triangular prism, but otherwise fits exactly onto the triangular prism. What percent has the surface area increased in the combined figure?

10) [6] New streetlights will be installed along a section of the highway. The posts for the streetlights will be 7.5 m tall and made of aluminum. The city can choose to buy the posts shaped like cylinders or the posts shaped like rectangular prisms. The cylindrical posts have a hollow core, with aluminum 2.5 cm thick, and an outer diameter of 53.4 cm. The rectangular-prism posts have a hollow core, with aluminum 2.5 cm thick, and a square base that measures 40 cm on each side.

The density of aluminum is  $2.7 \text{ g/cm}^3$ , and the cost of aluminum is \$0.38 per kilogram.

If all posts must be the same shape, which post design will cost the town less?

How much money will be saved per streetlight post with the less expensive design?