

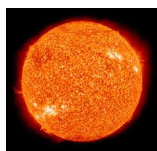
## P.S. #7.2 - 3D Geometry Day 2

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

- 1.) If we assume the Earth is a perfect sphere and we know the radius is  $4.0 \times 10^3$  miles, what is the volume of the Earth in scientific notation?



- 2.) If the current radius of the Sun is  $4.3 \times 10^5$  mi, what is the volume of the Sun in scientific notation?



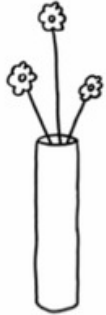
- 3.) How much larger is the volume of the Sun than the volume of the Earth?

- 4.) The salmonella bacteria are rod shaped. One has a radius of  $1.5 \times 10^{-4}$  in and a length of  $2.0 \times 10^{-4}$  in. What is the volume of a single bacterium?

- 5.) The bacterium that causes strep throat is a type of coccus bacteria, which is spherical. The radius of a single bacterium is  $5.0 \times 10^{-4}$  mm. What is the volume of a single bacterium?



- 6.) My sister's birthday is in a few weeks and I would like to buy her a new vase to keep fresh flowers in her house. She often forgets to water her flowers, so she needs a vase that holds a lot of water. In a catalog, there are three vases available and I want to purchase the one with the most water. The first vase is a cylinder with diameter 10 cm and height 40 cm. The second vase is a cone with base diameter of 16 cm and a height of 45 cm. The third vase is a sphere with a diameter of 18 cm.



**Cylinder Vase**  
Show off your flowers in this beautiful vase.  
10cm X 40cm  
\$9.95  
4KE09



**Cone Vase**  
This vase holds your flowers in place!  
16cm X 45cm  
\$9.95  
4KE08



**Sphere Vase**  
Doesn't get any more symmetric than this!  
18cm X 18cm  
\$9.95  
4KE07

- a.) Which vase should I purchase?
- b.) How much more water does the largest vase hold than the smallest vase as an exact answer.
- c.) Suppose the diameter of each vase decreases by 2 cm. Which vase would hold the most water?