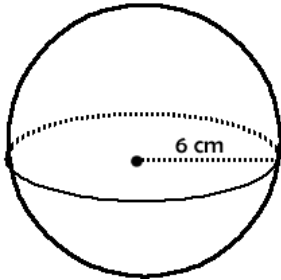
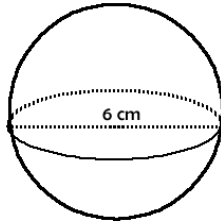


1. Determine the volume of the solid in terms of  $\pi$ .

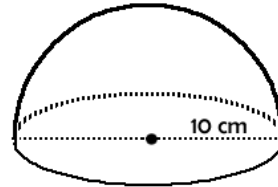
a)



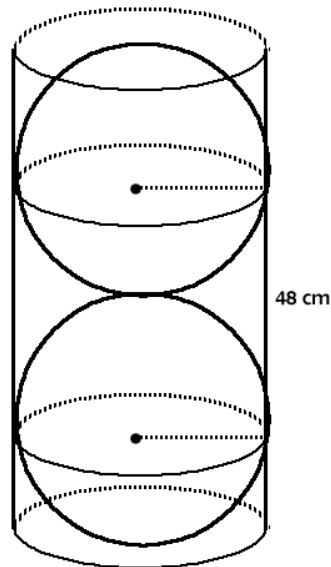
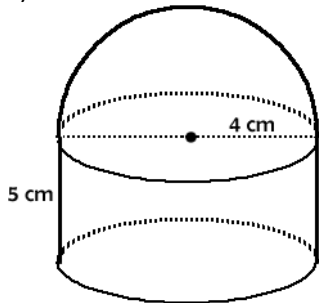
b)



c)



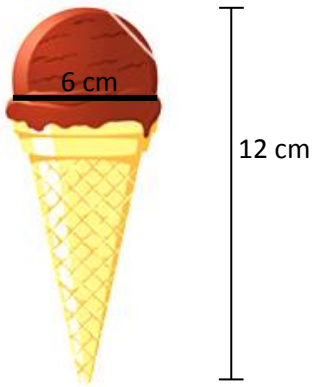
d)



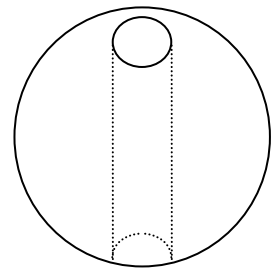
e) Two tennis balls fit exactly in the 48 cm tall cylindrical can. What is the volume of air in the can?

2. Surface Area of a sphere =  $4\pi r^2$ . If the surface area of a sphere is  $16\pi$ , then what is its volume?

3. Yum. Find the volume of a full perfect scoop of ice cream (in and on top of the cone), to the nearest tenth of a cubic centimeter. State the assumptions you used in your modeling.



4. A jeweler is making a bracelet. Each bead is with a diameter of 10 mm approximately spherical, with a cylindrical hole with a diameter of 2 mm drilled through it. Find the volume of a single bead in terms of  $\pi$ . Bonus: find the total volume.



5. Challenge: Explain why the hemisphere and the cylinder with a drilled out cone have the same volume.

