1. A glass marble is 32mm in diameter. Its glass is 4mm thick as shown in the diagram below.


4mm
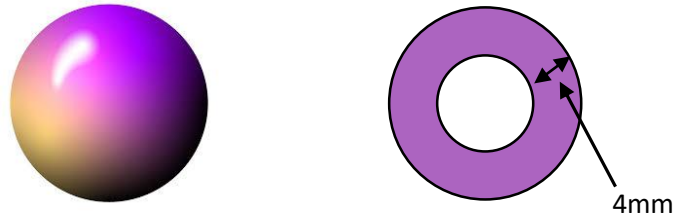
a) Work out the total volume of the marble.

b) Calculate the volume of glass need for each marble.   [Volume of sphere = $\frac{4}{3}\pi r^3$]

2.   A water cup at a gym is in the shape of a cone. Its diameter is 8cm and it has a vertical height of 11cm.

   Calculate the volume of water each cup can hold when full.   [Volume of Cone = $\frac{1}{3}\pi r^2 h$]

3.   An empty cylinder has a diameter of 18cm and a height of 32cm. A plastic cone is placed inside the cylinder. Calculate the volume of space remaining.

32cm

18cm
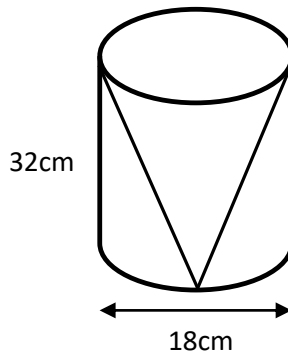
4.   Calculate the volume of the hemisphere shown below. Round your answer to 3 significant figures.

34cm