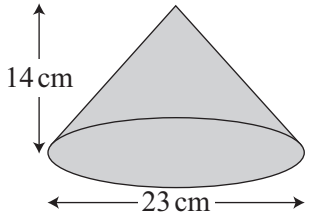
TASK **3.8**

Remember	sphere	pyramid	cone
	volume $= \frac{4}{3}\pi r^3$	volume $= \frac{1}{3} \times$ (base area) $\times h$	volume $= \frac{1}{3}\pi r^2 h$

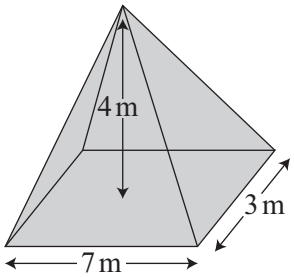
In this task, give answers to 3 significant figures where necessary.

1. Find the volume of each solid.

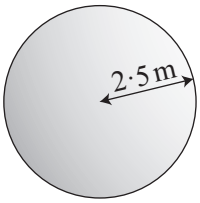
a



b



c

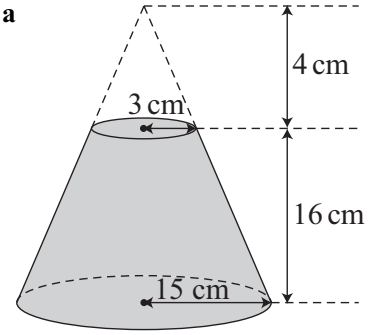


2. A hemisphere and a cone are both made from the same material. The cone has a base diameter of 8 cm and a perpendicular height of 6 cm. The hemisphere has a diameter of 7 cm. Which solid weighs more?

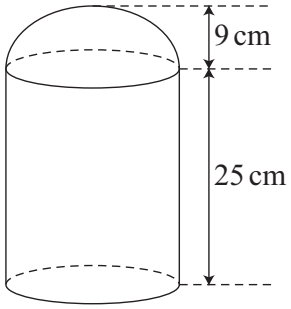
3. A sphere has a volume of 80 cm^3. Find the radius of the sphere.

4. Find the 'exact' volume of each solid, leaving your answers in terms of π.

a

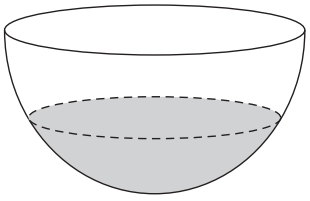


b



(hemisphere on a cylinder)

5. A bowl is in the shape of a hemisphere with diameter 18 cm. Water is poured into the bowl at a rate of 12 cm^3/s. How long will it take to fill the bowl completely?



6. A pyramid has a square base of side length 8 cm and a perpendicular height of 17 cm. The pyramid has the same volume as a cone of base radius 6·5 cm. Find the perpendicular height of the cone.

7. A metal cylinder has diameter 4·8 cm and a height of 8·3 cm. 75 identical cylinders are melted down to make a single sphere. Calculate the diameter of the sphere.