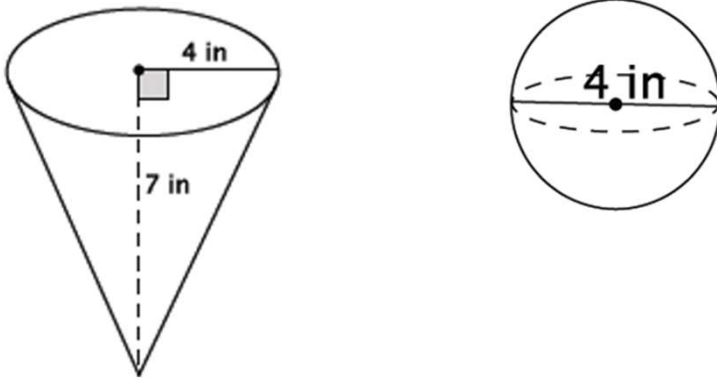
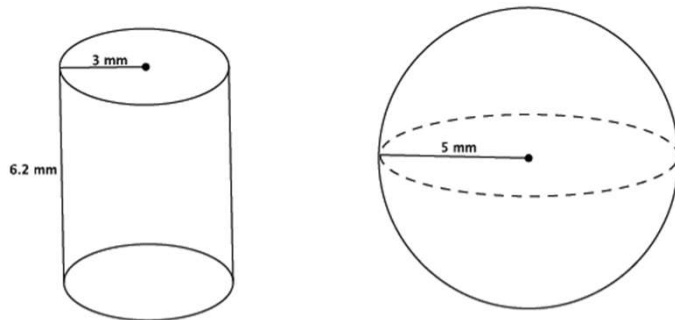


# Volumes of Spheres

1. Which of the two figures below has the lesser volume?

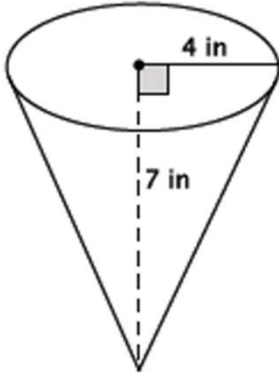


2. Which of the two figures below has the greater volume?



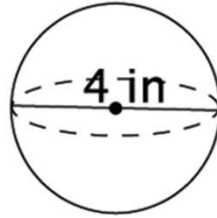
# Volumes of Spheres

1. Which of the two figures below has the lesser volume?



The volume of the cone:

$$\begin{aligned} V &= \frac{1}{3}\pi r^2 h \\ &= \frac{1}{3}\pi(16)(7) \\ &= \frac{112}{3}\pi \\ &= 37\frac{1}{3}\pi \end{aligned}$$

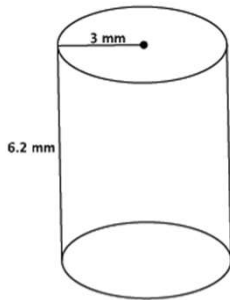


The volume of the sphere:

$$\begin{aligned} V &= \frac{4}{3}\pi r^3 \\ &= \frac{4}{3}\pi(2^3) \\ &= \frac{32}{3}\pi \\ &= 10\frac{2}{3}\pi \end{aligned}$$

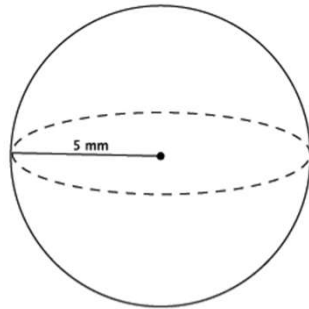
The cone has volume  $37\frac{1}{3}\pi \text{ in}^3$  and the sphere has volume  $10\frac{2}{3}\pi \text{ in}^3$ . The sphere has the lesser volume.

2. Which of the two figures below has the greater volume?



The volume of the cylinder:

$$\begin{aligned} V &= \pi r^2 h \\ &= \pi(3^2)(6.2) \\ &= 55.8\pi \end{aligned}$$



The volume of the sphere:

$$\begin{aligned} V &= \frac{4}{3}\pi r^3 \\ &= \frac{4}{3}\pi(5^3) \\ &= \frac{500}{3}\pi \\ &= 166\frac{2}{3}\pi \end{aligned}$$

The cylinder has volume  $55.8\pi \text{ mm}^3$  and the sphere has volume  $166\frac{2}{3}\pi \text{ mm}^3$ . The sphere has the greater volume.

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