

January 15th

$$\text{Volume of a sphere} = \frac{4}{3}\pi r^3$$

$$\text{Diameter} = 7\sqrt{6}$$

$$\text{Hence Radius} = \frac{7}{2}\sqrt{6}$$

$$\text{Volume} = \frac{4}{3} \times \pi \times \left(\frac{7}{2}\sqrt{6}\right)^3 = 343\sqrt{6} \pi$$

Expression for volume of the cylinder

$$= \pi r^2 h$$

$$= \pi \times r^2 \times 7\sqrt{6}$$

Form the equation

$$343\sqrt{6} \pi = \pi \times r^2 \times 7\sqrt{6}$$

$$r^2 = 49$$

$$\mathbf{r=7}$$