

The volume of a sphere.

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

Ex: 27.14.

1. Calculate the volume.

a. $V = \frac{4}{3} \pi r^3$

$$= \frac{4}{3} \times \pi \times 6^3$$

$$= \underline{904.9 \text{ cm}^3}$$

d. $V = \frac{4}{3} \pi r^3$

$$= \frac{4}{3} \pi \times 0.7^3$$

$$= \underline{1.4 \text{ cm}^3}$$

2. Calculate the radius.

a. $V = 130 \text{ cm}^3$

$$V = \frac{4}{3} \pi r^3$$

$$\frac{4}{3} \pi r^3 = 130$$

$$r^3 = \frac{3 \times 130}{4\pi}$$

$$r = \sqrt[3]{\frac{3 \times 130}{4\pi}} = \underline{3.1 \text{ cm}}$$

$$2c. \quad V = 0.2 \text{ m}^3$$

$$\frac{4}{3} \pi r^3 = 0.2$$

$$r = \frac{\sqrt[3]{0.2 \times 3}}{\sqrt{4\pi}}$$

$$= 0.363 \text{ m}$$

$$= \underline{\underline{36.3 \text{ cm}}}$$

$$d. \quad V = 1000 \text{ mm}^3$$

$$\frac{4}{3} \pi r^3 = 1000$$

$$r = \frac{\sqrt[3]{3 \times 1000}}{\sqrt{4\pi}}$$

$$= 6.2 \text{ mm}$$

$$= 0.62 \text{ cm}$$

$$\approx \underline{\underline{0.6 \text{ cm (1 dp)}}}$$