Exercise 89

Calculate these masses.

(a) What is the mass of 6.00 cm^3 of mercury, density = 13.5939 g/cm^3?

(b) What is the mass of 25.0 mL octane, density = 0.702 g/cm^3?

Solution

Part (a)

Start with the given volume of mercury and use the density to determine the mass.

$$6.00 \; \cancel{cm^3} \times \frac{13.5939 \text{ g}}{1 \; \cancel{cm^3}} \approx 81.6 \text{ g}$$

Part (b)

Start with the given volume of octane and use the density to determine the mass.

$$25.0 \; \cancel{mL} \times \frac{1 \; \cancel{cm^3}}{1 \; \cancel{mL}} \times \frac{0.702 \text{ g}}{1 \; \cancel{cm^3}} \approx 17.6 \text{ g}$$