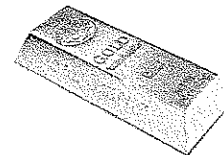


1. A sample of pure gold weighs 0.26 pounds. What is the volume of this gold sample, in gallons, if the density of the gold is 19.3 grams per milliliter?

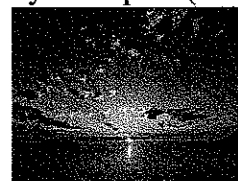
Plan: lb \rightarrow g \rightarrow mL \rightarrow L \rightarrow gal



$$0.26 \text{ lbs} \left(\frac{453.6 \text{ g}}{1 \text{ lb}} \right) \left(\frac{1 \text{ mL}}{19.3 \text{ g}} \right) \left(\frac{1 \text{ L}}{10^3 \text{ mL}} \right) \left(\frac{1 \text{ gal}}{3.785 \text{ L}} \right)$$
$$= 1.6 \times 10^{-3} \text{ gal}$$

2. If you could drive to the sun, which is 9.3×10^7 miles away, how long would your trip be (in days) if your speed were an average of 65 miles per hour?

Plan: miles \rightarrow hours \rightarrow days



$$9.3 \times 10^7 \text{ mi} \left(\frac{1 \text{ hr}}{65 \text{ mi}} \right) \left(\frac{1 \text{ day}}{24 \text{ hr}} \right)$$

$$= 6.0 \times 10^5 \text{ days}$$

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3. The face of a typical tennis racket is 115 square inches. What is this area in square meters?

Plan: $\text{in}^2 \rightarrow \text{cm}^2 \rightarrow \text{m}^2$



$$115 \text{ in}^2 \left(\frac{2.54 \text{ cm}}{1 \text{ in}} \right)^2 \left(\frac{1 \text{ m}}{100 \text{ cm}} \right)^2 = \boxed{0.0742 \text{ m}^2}$$

4. A sunscreen product contains 2.50% by mass benzyl salicylate. If a tube contains 4.0 ounces of sunscreen, how many pounds of benzyl salicylate would be needed to manufacture 325 tubes of sunscreen? (1 lb = 16 oz)

Plan: $\text{tubes} \xrightarrow{\text{SS}} \text{ounces} \xrightarrow{\text{SS}} \text{lbs} \xrightarrow{\text{BS}} \text{lbs}$

$$325 \text{ tubes} \left(\frac{4.0 \text{ oz}^{\text{SS}}}{1 \text{ tube}} \right) \left(\frac{1 \text{ lb}^{\text{SS}}}{16 \text{ oz}^{\text{SS}}} \right) \left(\frac{2.50 \text{ lbs}^{\text{BS}}}{100 \text{ lbs}^{\text{SS}}} \right)$$

$$= \boxed{2.0 \text{ lbs Benzyl Salicylate}}$$

BS = benzyl salicylate
SS = sunscreen