

2. **REASONING AND SOLUTION** 14.0 karat gold is $(14.0)/(24.0)$ gold or 58.3%. The weight of the gold in the necklace is then $(1.27 \text{ N})(0.583) = 0.740 \text{ N}$. This corresponds to a volume given by $V = M/\rho = W/(\rho g)$. Thus,

$$V = \frac{0.740 \text{ N}}{(19\,300 \text{ kg/m}^3)(9.80 \text{ m/s}^2)} = \boxed{3.91 \times 10^{-6} \text{ m}^3}$$