

.157 nm 2 nm3 /23 cm3

 $Vol = 4 + r^3 = 4 + \pi \cdot 157 \cdot nm^3 \left(10^{-9} \right)^3 \cdot 1^3 \cdot cm^3 = 1.62 \times 10^{-23} \cdot m^3 \cdot 1^3 \cdot m^3 \cdot 1^3 \cdot 1^3$

Force = kgm = N

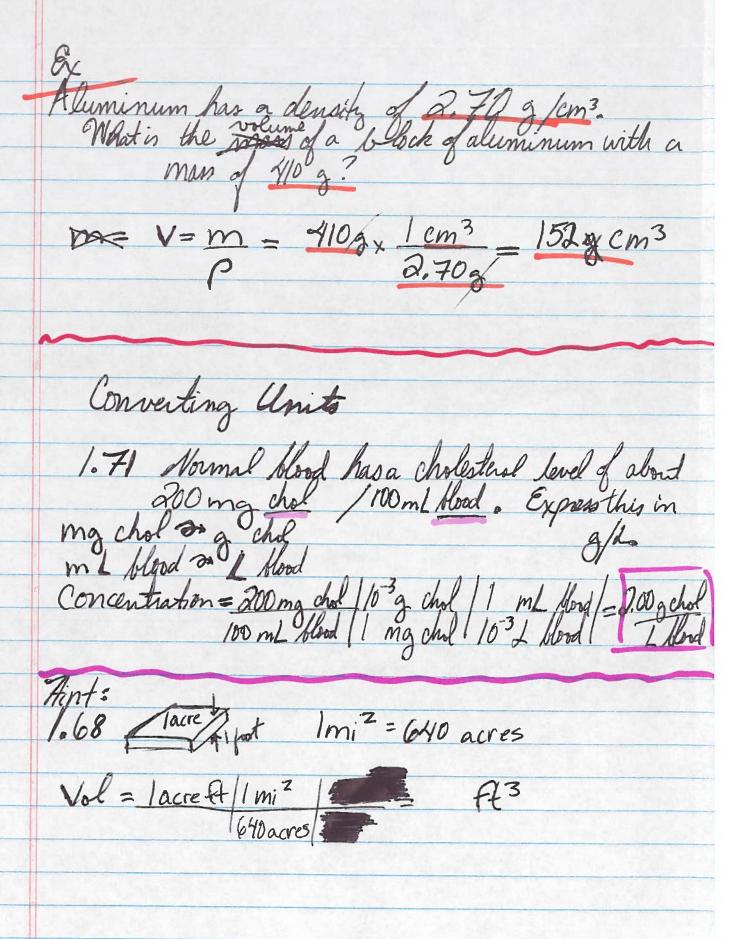
Faxal Rg = Pa m 52

Energy = kg m² = J

Density $P = \frac{m}{V} - \frac{mass}{volume}$ $\frac{g}{cm^2} = \frac{g}{mL}$

3/L etc

 $|m=\rho V| V= m$



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28 August 2015

Printed Name: Monika Satkauskas

Chm 203 Student number: 1A

1. ☐ Classify each of the following as a unit of density, volume, speed, area, or energy.

a. mg/L density b. kJ energy c. μ/cm³ density d. μm/s speed e. pm³ volume f. Gm² area g. kg m²/s² energy h. Cal energy

2.

A box has dimensions of 28 cm, 15 cm and 17 cm. What is the volume of the box, in L? Start by identifying the quantity you are looking for (V) and how you can get it from the information given $(V = I_1 \times I_2 \times I_3)$. Also, don't forget that the answer will have units of L.

Vol= 28cm x 15 cm x 17cm = 7/40 cm3 = 7/40 mL 7140 ml x 10-3 L = 7.140 L

 □ A coin suspected to be pure gold has a volume of 1.21 cm³ and a mass of 17.24 g. Given that gold has a density of 19.3 g/cm³, is it possible that the coin is pure gold? Show work.

0= 17.24g = 14.28/cm3 This coin is NOT gold because the density is too low.

4. ☐ Air has a density of 1.21 g/L. What is the mass of air in a cube measuring 1.0 m on a side? Start by rearranging the formula $\rho = m/V$

Vol cube = (1.0m) = 1m3 m=pV 1.21g/2 × 1032=1210g 10°m2 × 1032 = 103 L

5. Convert 74 miles/hour to units of m/s. Start by identifying the quantity in question.

Speed = 74 miles x 1 hr 1 min / 609.34m = 33

Quantity) 1 hr 60min 60s 1 mile number + units

Check in the any problem that you found difficult (you wouldn't be able to solve it on your own on an exam).