

Honors Chemistry: Mole Podcasts 5-6 Problem Set- Multi-Step Mole Conversions

Directions: Answer the following questions using the method shown Mole Podcast #5. Set-up all problems using the factor-label method of dimensional analysis and show all your work and units.

1. What volume would be occupied by 9.45×10^{24} molecules of CO_2 gas at STP?
2. How many calcium atoms would be in a 100 gram sample of calcium metal?
3. How many grams are in 5.6×10^{23} atoms of Zinc?
4. Calculate the number of molecules in 4.56-g of lead (II) nitrite.
5. Calculate the number of liters in 3.25-g of NH_3
6. Calculate the number of liters in 5.43×10^{25} molecules of H_2
7. Calculate the number of grams in 3.54-L of dinitrogen heptoxide.
8. Calculate the number of grams in 9.7×10^{22} molecules of $\text{CH}_3\text{CH}_2\text{OH}$ (ethanol).
9. The density of ethanol is 0.789 g/mL. What is the molar volume of ethanol? (see mole podcast 6)