

WORKSHEET 7

Chemistry 110

Name _____

(last)

(first)

Due date: _____

Solve the following problems, giving complete set-ups, including all units, and using correct significant figures.

1. Calculate the molar mass of $\text{Pb}(\text{C}_2\text{H}_5)_4$. (molar masses: Pb = 207.2 g/mole, C = 12.011 g/mole, H = 1.008 g/mole) 1. _____
2. What is the percent by mass composition of cobalt (III) oxide, Co_2O_3 ? (molar masses Co_2O_3 = 165.86 g/mole, Co = 58.93 g/mole, O = 16.00 g/mole) 2. _____ % Co
_____ % O
3. How many grams of carbon are there in 74.0 g of $\text{C}_3\text{H}_6\text{O}$? (molar mass $\text{C}_3\text{H}_6\text{O}$ = 58.08 g/mole) 3. _____
4. What is the mass, in grams, of 44.2 moles of the element nitrogen? (molar mass N = 14.01 g/mole) 4. _____
5. How many moles of sodium are in 7.22×10^{56} g of sodium thiosulfate? (molar mass sodium thiosulfate = 158.11 g/mole) 5. _____
6. One (1) aspirin tablet contains 5.0 grains of acetyl salicylic acid, $\text{C}_9\text{H}_8\text{O}_4$. How many moles of acetyl salicylic acid are in two (2) aspirin tablets? (0.0648 g = 1.00 grain) (Molar mass $\text{C}_9\text{H}_8\text{O}_4$ = 180.16 g/mole) 6. _____
7. If gold was selling for \$324 per ounce, how much money, in dollars, would 1.22×10^{24} gold atoms cost? (molar mass Au = 196.97 g/mole) 7. _____

8. A mixture contains 10.00 g of NH_4Br and 5.00 g of $(\text{NH}_4)_2\text{SO}_3$. What is the total number of moles of ammonium ions in the mixture?
(Molar masses: $\text{NH}_4\text{Br} = 97.94 \text{ g/mole}$, $(\text{NH}_4)_2\text{SO}_3 = 116.14 \text{ g/mole}$) 8. _____
9. What is the total number of atoms in 8.00 mole of aluminum cyanide? 9. _____
10. How many Ag atoms are in $7.54 \times 10^{-6} \text{ mg}$ of Ag? (molar mass Ag = 107.87 g/mole) 10. _____
11. The percent composition of a coolant used in cars is 38.7% C, 9.7% H, and 52.1% O. The molar mass of the coolant compound is 62.0 g/mole. (molar masses: C = 12.01 g/mole, H = 1.008 g/mole, O = 16.00 g/mole)
- a. What is the empirical formula of the compound? 11a. _____
- b. What is the molecular formula of the compound? 11b. _____
12. A 16.99 gram sample of a compound made of iron and oxygen is found to contain 11.89 g of iron. What is the empirical formula of the compound?
(molar masses: Fe = 55.85 g/mole, O = 16.00 g/mole) 12. _____