

HOME WORK 8
CHAPTER 8

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) How many atoms of nickel equal a mass of 58.69 g? (Refer to the Periodic Table.) 1) _____
A) 6.02×10^{23}
B) 28
C) 1
D) 58.69
E) 59
- 2) Given that Na-23 is the only natural isotope of sodium, what is the mass of one Na atom and the mass of Avogadro's number of Na atoms, respectively? 2) _____
A) 23 g and 23 amu
B) 22.99 amu and 22.99 g
C) 23 amu and 23 g
D) 22.99 g and 22.99 amu
E) none of the above
- 3) Which of the following is equal to 1.00 mole of substance? 3) _____
A) 6.02×10^{23} bromine molecules, Br₂
B) 6.02×10^{23} potassium bromide formula units, KBr
C) 6.02×10^{23} potassium atoms, K
D) all of the above
E) none of the above
- 4) How many molecules of methane are in 0.500 mol of CH₄ gas? 4) _____
A) 1.20×10^{24} molecules
B) 3.01×10^{24} molecules
C) 3.01×10^{22} molecules
D) 3.01×10^{23} molecules
E) 1.20×10^{23} molecules
- 5) How many moles of potassium nitrate contain 8.68×10^{20} KNO₃ formula units? 5) _____
A) 694 mol
B) 0.00144 mol
C) 1.44 mol
D) 6.94 mol
E) 0.0144 mol
- 6) What is the molar mass of ammonium dichromate, (NH₄)₂Cr₂O₇? 6) _____
A) 372.18 g/mol
B) 386.19 g/mol
C) 252.10 g/mol
D) 238.09 g/mol
E) 260.18 g/mol

- 7) What is the mass of 3.30×10^{23} atoms of silver, Ag? 7) _____
 A) 85.7 g B) 59.1 g C) 0.549 g D) 25.8 g E) 197 g
- 8) How many ethane molecules are in 22.4 liters of C_2H_6 gas at STP? 8) _____
 A) 6.02×10^{23}
 B) 1.20×10^{24}
 C) 1.35×10^{25}
 D) 2.69×10^{22}
 E) 1.81×10^{24}
- 9) What is the volume of 1.20×10^{22} molecules of nitric oxide gas, NO, at STP? 9) _____
 A) 2.24 L B) 0.447 L C) 1120 L D) 0.0199 L E) 5.02 L
- 10) What is the mass of 455 mL of ethane gas, C_2H_6 , at STP? 10) _____
 A) 2.95 g B) 0.611 g C) 65.9 g D) 10.2 g E) 0.340 g
- 11) What is the density of carbon monoxide gas, CO, at STP? 11) _____
 A) 1.40 g/L B) 0.800 g/L C) 1.25 g/L D) 22.4 g/L E) 0.714 g/L
- 12) If the density of an unknown gas is 2.59 g/L at STP, what is its molar mass? 12) _____
 A) 58.0 g/mol B) 25.9 g/mol C) 259 g/mol D) 8.65 g/mol E) 22.4 g/mol
- 13) The formula for mustard gas used in chemical warfare is $\text{C}_4\text{H}_8\text{SCl}_2$ (159.09 g/mol). What is the percentage of chlorine in the compound? 13) _____
 A) 44.57% B) 30.20% C) 20.16% D) 5.08% E) 22.28%
- 14) If 6.00 mol of cobalt combines with 9.00 mol of sulfur, what is the empirical formula of the cobalt sulfide product? 14) _____
 A) Co_2S_3
 B) Co_6S_9
 C) Co_9S_6
 D) Co_3S_2
 E) none of the above
- 15) Acetylene is used in oxyacetylene gas welding. Calculate the empirical formula for acetylene given its percent composition: 92.25% C and 7.75% H. 15) _____
 A) CH_2 B) C_{12}H C) CH D) C_8H_8 E) CH_8