South Pasadena • AP Chemistry

Name _____
Period ____ Date ____/____/____

3 • Molecules & Compounds

Mole Calculations - Difficulty Level 1

1 mole = 6.02 x 10^{23} molecules = 22.4 L (at STP)

1. Calculate the mass of 0.58 moles CH_4. (molar mass CH_4 = 16.0 g/mol)
   (L) 0.58 moles CH_4
   (R) ? g CH_4

   0.58 moles CH_4 | ——————— =

2. What volume will 7.29 moles of CO_2 gas occupy at STP?
   (L) 7.29 moles CO_2
   (R) ? L CO_2

   7.29 moles CO_2 | ——————— =

3. How many molecules are there in a 0.99583 mole sample of H_2O?
   (L) 0.99583 moles H_2O
   (R) ? molecules H_2O

   0.99583 moles H_2O | ——————— =

4. What mass of CO_2 gas occupies a volume of 186 Liters at STP? (molar mass CO_2 = 44.0 g/mol)
   (L) 186 Liters CO_2
   (R) ? g CO_2

   186 Liters CO_2 | ——————— =

5. How many molecules are in a 35.0 grams sample of H_2O? (molar mass H_2O = 18.0 g/mol)
   (L) 35.0 g H_2O
   (R) ? molecules H_2O

   35.0 g H_2O | ——————— =

6. What volume will 3.25 x 10^{24} molecules of CH_4 occupy at STP?
   (L) 3.25 x 10^{24} molecules CH_4
   (R) ? L

   3.25 x 10^{24} molecules CH_4 | ——————— =