

CHEM 101  
Molar Volume Problems

1. Calculate the molar volume of each of the following:
  - a. 3.00 moles of hydrogen gas
  - b. 46.00 grams of nitrogen gas
  - c. 200.0 grams of carbon monoxide
  - d. 5.00 moles of bromine gas
  - e.  $3.01 \times 10^{23}$  molecules of ethane ( $\text{C}_2\text{H}_6$ )
  
2. Calculate the mass of each of the following:
  - a. 20.0 mL of nitrogen gas
  - b. 7.0 L of hydrogen gas
  
3. Calculate the number of atoms or molecules of each of the following:
  - a. 1000.0 mL of oxygen gas
  - b. 200.0 mL of sulfur dioxide gas

Answers: 1 a) 67.2 L, b) 36.80 L, c) 160.0 L, d) 112 L, e) 11.2 L  
2 a) 0.024 g, b) 0.625 g  
3 a)  $2.6875 \times 10^{22}$  molecules, b)  $5.375 \times 10^{21}$  molecules