

Name: _____

Date: _____

Mixed Mole and Molarity Problems

1. How many oxygen molecules are in 3.36 L of oxygen gas at STP?
 2. Find the mass in grams of 2.00×10^{23} molecules of F_2 . 12.624 g
 3. Determine the volume in liters occupied by 14 g of nitrogen gas at STP.
 4. Find the mass, in grams, of 1.00×10^{23} molecules of N_2 .
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- 1 Find the molar concentrations of the following solutions:
 - a) 1.4 moles of HCl in 250 mL of solution
 - b) 1.4 moles of HNO_3 in 250mL of solution
 - c) 1.4 moles of $C_6H_{12}O_6$ in 250 mL of solution
 - d) 20.0g of NaOH in 1.0 L of solution
 - e) 20.0g of NaOH in 400.0 mL of solution
 - f) 20.0 g of NaOH in 22.5 L of solution

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2. How many moles of solute are contained in the following:
- 2.0 L of a 1.0 M NaCl solution
 - 100.0 mL of a 2.5 M HCL solution
 - 50.0 mL of a 0.48 M HCl solution
 - 50 mL of a 0.48 M glucose solution
3. What volume of a 1.25 M solution of calcium sulfate would contain:
- 1.0 moles of solute?
 - 5.0 moles of solute
 - 136g of CaSO_4
 - 27.2 g of CaSO_4
4. How many grams of solute would you use to prepare these solutions?
- 1.0 L of a 0.10 M NaOH solution?
 - 500 mL of a 0.25 M NaOH solution
 - 500 mL of a 0.250 M HCl solution?
 - 500 mL of a 0.250 M CaSO_4 solution

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5. How many moles of solute are contained in:
- i) 1.00 L of a 1.50 mol/L NaOH solution?
 - ii) 200.0 mL of a 1.50 M NaOH solution?
 - iii) 200.0 mL of a 1.50 M CaCO₃ solution?