

Topic 2.

SOLUTION CONCENTRATIONS: PERCENTAGE, MOLARITY.

Theoretical QUESTIONS for preparation:

I. Concentrations

1. Solution, solute, solvent
2. Concentration of solutions
 - a. Percent by weight
 - b. Percent by volume
 - c. Percent by weight/volume
 - d. Weight or volume fractions
3. Concentrations depending on the mole unit
 - a. Molarity

TASKS

Example 1: A 1.215-g sample of NaCl is dissolved in 65.483 g of water. What is the mass percent of NaCl in the solution?

Given:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Given:

Given:

Example 4: How many moles of solute are in 682. mL of 1.5 M NH_3 solution?

Given:

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Example 5: How many grams of solute are in 2.4 mL of a .02 M H_2O_2 solution?

Given:

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a full page of primary-ruled notebook paper. It features ten horizontal blue lines spaced evenly down the page. There are two vertical red lines on each side, creating three columns: a narrow left margin, a wide central writing area, and a narrow right margin. The paper is white and appears to be from a standard elementary school notebook.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings visible.

Example 8: What volume of 3.25 M sulphuric acid is needed to prepare 0.5 L of 0.130 M H_2SO_4 ?

Given:

Example 9: Calculate the molarity of an aqueous vinegar solution, which is 5.0% $\text{HC}_2\text{H}_3\text{O}_2$ (MM of $\text{HC}_2\text{H}_3\text{O}_2 = 60 \text{ g/mol}$), density $\rho = 1 \text{ g/ml}$.

Given:
