

Name:

Period:

Seat#:

Mathematical Questions

- Show plugging in the variables to the correct places in the equation
 - Get an actual answer, including units! Box your answer!
 - Don't forget - you must show units and any conversions that might be involved.
 - You can either rearrange your equation before you plug in your variables, or after. Do what works for you!
 - Some answers are provided at the end of the question. They are underlined.
- 1) 92.3 grams of potassium fluoride, KF, are dissolved in 1000.0 grams of water. What is the percent by mass of water? 8.45% KF, 91.55% H₂O
- 2) 0.95 grams of potassium fluoride, KF, are dissolved in 1000.0 grams of water. What is the molarity of the solution? Assume that the KF does not add a significant amount of volume to the solution. 0.016M
- 3) A 555 gram sample of aqueous hydrogen peroxide, H₂O₂, contains 31.5% H₂O₂ by mass. Find the mass of the hydrogen peroxide. 174.825 g
- 4) 24.0 mL of methanol, CH₃OH, is dissolved in 48.0 mL of water. What is the percent by volume of methanol in the solution? 33.33 %
- 5) What mass of ammonium chloride would you use to prepare 85.0 mL of 1.20 M solution? 5.457 g

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Solutions – Calculations Part 2

- 6) 27.0 g of salt are dissolved in 200 mL of H₂O, what is the concentration of the solution in grams per liter? 135 g/L
- 7) Calculate the molarity of 2.05 L of a solution that contains 156.5 g of sucrose, C₁₂H₂₂O₁₁. 0.22 M
- 8) How many grams of sucrose are there in 2.5 L of the solution in question 7? 188.3 g
- 9) Which solution of NaCl has the greater concentration: 2.5 M or 52 g/L? 2.5 M
- 10) Which solution of sucrose has the greater concentration: 12.0 M or 4.5 g/mL 4.5 g/mL
- 11) A 0.750 L aqueous solution contains 90.0 g of ethanol, C₂H₅OH. Calculate the molar concentration of the solution in mol·L⁻¹. 2.60M

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12) What mass of NaCl are dissolved in 152.0 mL of a solution if the concentration of the solution is 0.364 M? 3.24 g

13) What mass of dextrose, $C_6H_{12}O_6$ is dissolved in 325.0 mL of 0.258 M solution? 15.1 g

14) A mass of 98.0 g of sulfuric acid, H_2SO_4 , is dissolved in water to prepare a 0.500 M solution. What is the volume of the solution? 2.00 L

15) A solution of Na_2CO_3 , contains 53.0 g of solute in 215.0 mL of solution. What is its molarity? 2.33 M

16) What is the molarity of a solution of HNO_3 that contains 12.6 g of solute in 5.00 L of solution? $3.93 \times 10^{-2} M$

17) What mass of copper(II) nitrate, is present in 50.00 mL of a $4.55 \times 10^{-3} M$ aqueous solution? $4.27 \times 10^{-2} g$