

Solutions Homework One

Read section 18-1. Then attempt these questions.

1. name and distinguish between the two parts of any solution. (top 502)
 2. What are the three factors that affect the rate dissolving? (top 502)
 3. Define miscible and immiscible. (503)
 4. How much AgNO_3 will saturated 250.0 mL at 20°C ? (green table, page 504)
 5. You remember that most solutes do not supersaturate their solutions when cooled. Sugar does, but silver nitrate does not. If you cooled your silver nitrate solution in question 4 to zero centigrade, what happens?
 6. Explain the changes in solubility as the temperature increases for oxygen and carbon dioxide.
 7. Explain why you burp if you drink cold soda quickly in terms of temperature changes and solubility of CO_2 in the soda.
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Solutions Homework #2 Read section 18.2

1. Define Molarity, include the formula from your Reference table with a key to show what each letter stands for. (509)
2. Define concentrated and dilute solutions. About how many grams of sugar would make a dilute 100 mL aqueous solution at 20°C ? A concentrated one at the same temperature? (green table 504)
3. You mix a 100 mL saturated solution of sodium chloride at 10°C . What is the molarity of this solution? (hint, convert grams to moles, then mL to liters)
4. You dissolve 2.4 moles of KCl into 5.00 liters of water. What is the molarity of this solution?
5. You dissolve 7.85 moles of KNO_3 into 16.0 liters of water, what is the molarity of this solution?
6. You put 53 grams of sucrose into your 250 mL hot water for sweet tea. What is the molarity of this sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11(\text{AQ})}$) solution?
7. "Normal" saline is $\text{NaCl}_{(\text{AQ})}$ solution that you get via an IV line in the hospital if you are dehydrated. There are 9.0 grams NaCl per liter of water, which is the same salt concentration in your body. What's the molarity of this solution?

Solutions Homework #3
Read 18-2 and 18-3

1. How many moles of ammonium nitrate are in 335 mL of 0.425 M $\text{NH}_4\text{NO}_3(\text{AQ})$?
2. How many moles of solute are in 250 mL of 2.0 M $\text{CaCl}_2(\text{AQ})$? How many grams of calcium chloride is this?
3. Write the third formula on page 512, the "moles of solute" formula and add it to your reference table in the box next to the molarity formula
4. If you have a stock solution of 2.0 M $\text{Ca}(\text{OH})_2$,
 - A. How many mL are needed to form a 1.4 M solution of 550 mL?
 - B. How many mL are needed to form a 0.75 M solution of 305 mL?
 - C. How many mL are needed to form a 1.4 M solution of 785 mL?
 - D. How many mL are needed to form a 0.250 M solution of 25.0 mL?

FOR A, B, C, and D, SHOW formula each time, show work, correct SF!!!

Solutions HW #4

1. How many parts per million of lead be present in a water tank of 250,000 liters if there were 1.1 kilograms of lead dissolved into this water?
2. What is the concentration of $\text{O}_{2(\text{G})}$ in parts per million, in a solution that contains 0.008 grams of O_2 dissolved into each 1000. grams of $\text{H}_2\text{O}_{(\text{L})}$? (NYS Regents Jan 2008, #38) You must show work here.
 - A. 0.8 ppm
 - B. 8 ppm
 - C. 80 ppm
 - D. 800 ppm
3. An aqueous solution has 0.0070 grams of oxygen dissolved into 1000. grams of water. Calculate the dissolved oxygen concentration of this solution in parts per million. Your response must include a correct numerical set up and an answer with proper significant figures. (NYS Regents June 2007 # 66)