WS 7.5.1 Molarity *Cross-off answers as you find them* **SHOW WORK!**

1. Determine the concentration (molarity) for each of the solutions:

a) 3.0 mol sugar dissolved in 2.0 L of solution. _____

b) 0.030 mol KNO_3 dis. in 50.0 mL of soln. _____

c) 6.45 g of Na_2SO_4 dis in 250 mL of soln. _____

2. How many moles of NaBr are needed to make 150 mL of 3.0 M NaBr solution? Ans: _____

3. How many grams of $NaNO_2$ are needed to make 3.5 L of 0.50 M $NaNO_2$ solution? Ans: _____

4. How many grams of K_2CO_3 are needed to make 300.0 mL of 1.25 M K_2CO_3 solution?

Ans: _____

5. What volume (L) of 0.25 M sugar solution can be made using 4.0 moles sugar? Ans: _____

6. How many mL of 2.50 M Na_3PO_4 solution can be made using 1.8 g of Na_3PO_4? Ans: _____

(more on back)

Ans (IRO +5): 0.040 0.15 0.18 0.45 0.60 0.69 1.5 2.85 3.5 4.4 16 51.8 120
Units: (IRO + 5): moles, moles, g, g, g, L, mL, M, M, M, M, M, M

WS 7.5.2 Molarity

7. 65.0 mL of K_3PO_4 solution are evaporated, and 1.54 g of solid K_3PO_4 are recovered.
What was the molarity of the original solution? ***(hint: this is similar to part 1 of the molarity lab)***

Ans: _____

8. Sketch a volumetric flask and explain precisely how you would use a 500.0 mL volumetric flask to make some 1.500 M $NaNO_3$ solution.
(hint: look at molarity lab part 2, and the 5 steps on how to use a vol. flask).
Be sure to show your calculations, including how many grams of solute to use

9. ***Do this question after you've completed part 1 of the molarity lab:***
You are handed a large flask containing a K_2CO_3 solution of unknown molarity. Describe precisely, step by step, how you would go about determining the molarity. Use any equipment you want!
(hint: look at what you did in part 1 of the molarity lab)

Ans (IRO +4):	0.112	0.230	0.938	3.88	42.4	63.75
Units (IRO):	M	g				

x1. **BONUS!!!** One grain of sugar with a mass of 0.25 mg is dissolved in a 25.0 m x 10.0 m x 3.0m Olympic swimming pool filled with water. Determine the sugar concentration, and then use it to determine how many molecules of sugar would be contained in just one drop of the "sweetened" pool water solution.
[1 g = 1000 mg, 1 m^3 = 1000 L, 20 drops = 1 mL, sugar = $C_{12}H_{22}O_{11}$]

Ans: _____