**Chem 1013: mini-quiz # 11: basic mole calculations A 6 pts March 2**

Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Show work ! (2 pts/problem)

a) The molecular weight of H2SO4 is 98 g/mol. How many moles are in 490 grams of H2SO4 ?

divide up: 490 g/98 g mol‑1 = 5

 \_\_5\_\_\_\_mol H2SO4

b) The molecular mass of NaCl is 58 g/mol. How many grams are in 0.01724 mol of NaCl ?

multiply down: 0.01724 mol \* 58 g/mol =1.0 g

 \_\_1\_\_\_\_\_ g NaCl

c) You have 3.6 g of sucrose whose molecular weight is 360 g/mol. Given that 1 mol count=6\*1023 molecules, how many molecules of sucrose are in the 3.6 g sample ?

divide up to moles: 3.6 g/360 g mol-1 =0.01 mol

multiply down to molecule count: 0.01 mol \*6\*1023 molecules/mol=6\*1021

 \_\_\_6\*1021\_\_\_\_\_\_\_ molecules

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Show work ! (2 pts/problem)

a) The molecular weight of H2SO4 is 98 g/mol. How many moles are in 245 grams of H2SO4 ?

divide up: 245 g/98 g mol‑1 =2. 5

 2.5\_\_\_\_\_\_mol H2SO4

b) The molecular mass of NaCl is 58 g/mol. How many grams are in 0.03448 mol of NaCl ?

multiply down: 0.03448 mol \* 58 g/mol =2.0 g

 \_2.0 \_\_\_\_\_\_ g NaCl

c) You have 7.2 g of sucrose whose molecular weight is 360 g/mol. Given that 1 mol count=6\*1023 molecules, how many molecules of sucrose are in the 7.2 g sample ?

divide up to moles: 7.2 g/360 g mol-1 =0.02 mol

multiply down to molecule count: 0.02 mol \*6\*1023 molecules/mol=1.2\*1022

 \_\_\_1.2\*1022\_\_\_\_\_\_\_ molecules