CHM 151   Quiz 4   25 Pts Spring 2020   Name: _____

Due Tuesday March 17th at the **Beginning** of class. Show all work to receive credit.

1. What is the resulting concentration when 455.8 mL of a 0.0786 M Na_2SO_4 solution is evaporated to a volume of 50.00 mL?

2. What concentration H_3PO_4 results when 50.00 mL of 0.355 M H_3PO_4 solution is diluted to 400.0 mL?

3. How many grams of HNO_3 are present in 450.0 mL of 0.0550 M HNO_3 solution?

4. 25.00 mL of 0.505 M HCl solution is reacted with 20.50 mL of 0.303 M $Ba(OH)_2$ solution.
     a. Determine how many moles of the excess reactant is present when the reaction is done.

     b. Determine the concentration (Molarity) of the remaining (excess) reactant.

5. In the reaction $3Ca(OH)_2(s) + 2H_3PO_4(aq) \rightarrow Ca_3(PO_4)_2(s) + 6H_2O(l)$
how many grams of $Ca(OH)_2$ are required to neutralize 10.0 L of 0.60 M H_3PO_4 solution?

6. What volume of 0.131 M $BaCl_2$ is required to react completely with 42.0 mL of 0.453 M Na_2SO_4?

$$BaCl_2(aq) + Na_2 SO_4(aq) \rightarrow BaSO_4(s) + 2NaCl(aq)$$
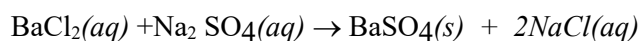
7. The first chemical compound containing a noble gas was prepared in 1962. What is the empirical formula for the compound that is 67.2% xenon and 32.8% oxygen by mass?

8. Calculate the concentration (M) of arsenic acid (H_3ASO_4) in a solution if 25.00 mL of that solution required 35.21 mL of 0.1894 M KOH for neutralization.

$H_3AsO_4(aq) + KOH(aq) \rightarrow 3H_2O(l) + K_3AsO_4(aq)$
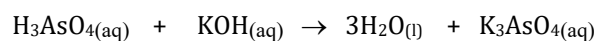
9. Determine the resulting molarity of HCl if 25.0 mL of 0.15 M HCl are combined with 55.0 mL of 0.35 M HCl solution.