**Dougherty Valley HS AP Chemistry**

**WORKSHEET #1**

**Acid Base – pH Calculations**

**Name: Date: Period: Seat #:**

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| --- | --- |
| **strong acid solution** – determine [H+], calculate pH (2.903)  Calculate the pH of 0.00125M HNO3 | **strong base solution** – determine [OH-], calculate pOH, calculate pH (11.097). Calculate the pH of 0.00125M KOH |
| **weak acid solution** – determine [H+] using ICE box, calculate pH (5.18). Calculate the pH of 0.00125M HOCl Ka = 3.5 x 10-8 | **weak base solution** – determine [OH-] using ICE box, calculate pOH, calculate pH (10.15). Calculate the pH of 0.00125M NH3 Kb = 1.8 x 10-5 |
| **salt of a weak acid** – write hydrolysis, calc Kb, determine [OH-] using ICE box, calc pOH, calc pH (9.28). Calculate the pH of 0.00125M NaOCl | **salt of a weak base** – write hydrolysis, calc Ka, determine [H+] using ICE box, calc pH (6.08). Calculate the pH of 0.00125M NH4Cl |
| **diprotic acid solution** – assume all [H+] from first ionization, determine [H+] using ICE box, calculate pH. Calculate the pH of 0.00125M H2CO3 Ka1 = 4.2 x 10-7 Ka2 = 4.8 x 10-11 (4.64) | **mixture of acid and base** – calculate moles of H+ and OH-, determine moles of excess H+ or OH-, determine total  volume, calculate [H+] or [OH-], calculate pH  Calculate the pH of 20.0 mL of 0.00125M HNO3 + 30.0 mL of 0.00125M KOH (10.398) |