Name:_____ Period:___ Date:_____

Homework:
Utilizing the table of K_a and K_b values provided below, calculate the pH of the following solutions by following this procedure:

- write the ionization reaction, *(recall an acid loses H^+, a base gains it)*
- then write the equilibrium expression,
- utilizing the K_a or K_b as appropriate for the reaction
- follow-up by solving for H^+ or OH^- and then
- find the pH *(you may have to convert)*

Weak Acids	K_a	pK_a
HNO_2	4.5×10^{-4}	3.35
HF	6.5 x 10-4	3.19
HCN	4.9×10^{-10}	9.31
$HC_2H_3O_2$	1.8×10^{-5}	4.74
Weak Bases	K_b	pK_b
NH_3	1.8×10^{-5}	4.74
N_2H_4	1.7×10^{-6}	5.77
CH_3NH_2	3.8×10^{-10}	9.42

Note: include water as a reactant in the base ionization *reactions* but do NOT include water in the final equilibrium expression as it is also the solvent in these aqueous reactions.

Example: $CH_3NH_2 + H_2O \rightleftharpoons CH_3NH_3^+ + OH^-$ $\quad Kb = \dfrac{[CH_3NH_3^+][OH^-]}{[CH_3NH_2]}$

1. 0.30 M HNO_2
2. 1.00 M HF
3. 0.025 M HCN
4. 0.136 M $HC_2H_3O_2$
5. 0.15 M NH_3
6. 0.20 N_2H_4
7. 0.010 M CH_3NH_2