

Name: \_\_\_\_\_

Honors Chemistry:  yellow  blue  red

### pH, pOH, $K_a$ & p $K_a$ worksheet

Calculate the pH of each of the following aqueous solutions and tell whether the solution is acidic, basic or neutral.

1.  $[H^+] = 4.59 \times 10^{-7} M$

2.  $[OH^-] = 7.42 \times 10^{-5} M$

Calculate the pOH of each of the following aqueous solutions:

3.  $[OH^-] = 4.59 \times 10^{-13} M$

4.  $[H^+] = 4.29 \times 10^{-11} M$

Calculate  $[H^+]$  in each of the following aqueous solutions:

5. pH = 13.1

6. pOH = 4.95

Calculate  $[OH^-]$  in each of the following aqueous solutions:

7. pOH = 9.39

8. pH = 2.54

9. An  $0.100\text{ M}$  solution of nitrous acid ( $\text{HNO}_2$ ) has a pH of 2.17.

(a) What is  $[\text{H}^+]$  for this solution?

(b) What is  $[\text{NO}_2^-]$  for this solution?

(c) What is  $[\text{HNO}_2]$  for this solution? (Hint: it is close to, but not exactly  $0.1\text{ M}$ , . The concentration of  $0.1\text{ M}$  does not account for dissociation.)

(d) What is the value of  $K_a$  for  $\text{HNO}_2$ ?

(e) What is the  $\text{p}K_a$  of  $\text{HNO}_2$ ?