CHEMISTRY
pH WORKSHEET

NAME Key PER

pH—pOH—[H⁺]—[OH⁻]

$pH = -\log[H^+]$ $pOH =$ $pH + pOH = 14$

1. Calculate the values of both pH and pOH of the following solutions:

	pH	pOH
a. 0.020 M HCl → Acid	1.70	14 − 1.70 → 12.30
b. 0.0050 M NaOH Base →	11.70	14 − 2.3 ← 2.30
c. A blood sample 7.2×10^{-8} M of H^+ → Acid	7.14	14 − 7.14 → 6.86
d. 0.00035 M KOH Base →	10.54	3.46

2. Find the values of $[H^+]$, pOH, $[OH^-]$, that correspond to each of the following pH values:

10^{-pH} 10^{-pOH} $14 - pH =$

	$[H^+]$	$[OH^-]$	pOH
a. pH of lemon juice = 2.90 ☆	0.00126	$7.94 \cdot 10^{-12}$	11.1
b. pH of sauerkraut = 3.85 ☆	$1.41 \cdot 10^{-4}$	$7.08 \cdot 10^{-11}$	10.15
c. pH of milk of magnesia, a laxative = 10.81	$1.56 \cdot 10^{-11}$	$6.45 \cdot 10^{-4}$	3.19
d. pH of most orange juices = 4.11 ☆	$7.76 \cdot 10^{-5}$	$1.29 \cdot 10^{-10}$	9.89
e. pH of dilute household ammonia in windex = 11.61	$2.45 \cdot 10^{-12}$	0.00407	2.39

3. Determine which of the solutions in #2 are acidic?

☆ = Acidic

4. A certain brand of rootbeer has a hydrogen concentration equal to 1.9×10^{-5}M. What is the pH and pOH of this rootbeer?

$pH = -\log(1.9 \cdot 10^{-5}) = 4.72$ $pOH = 14 - 4.72 = 9.28$

5. Dr. Pepper has a [H+] = 1.4×10^{-5}M. What is its pH?

$10^{-(1.4 \cdot 10^{-5})} = 1.00$