

## 16 • Acids, Bases and salts

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### 16.4 - 16.5 Lecture Practice Problems

#### 16.4 The pH Scale

For Example: A sample of freshly pressed apple juice has a pH of 3.76. Calculate the  $[H^+]$ .

1. Find the pH of these:

(a) A 0.15 M solution of Hydrochloric acid

(b) A  $3.00 \times 10^{-7}$  M solution of Nitric acid

2. The pH of rainwater collected in a certain region of the northeastern United States on a particular day was 4.82. What is the  $H^+$  ion concentration of the rainwater?

3. The  $OH^-$  ion concentration of a blood sample is  $2.5 \times 10^{-7}$  M. What is the pH of the blood?

4. A chemist dilutes concentrated hydrochloric acid to make two solutions: Calculate the  $[H_3O^+]$ , pH,  $[OH^-]$ , and pOH of the two solutions at  $25^\circ C$ .

(a) 3.0 M

(b) 0.0024 M.

5. What is the  $[\text{H}_3\text{O}^+]$ ,  $[\text{OH}^-]$ , and pOH of a solution with  $\text{pH} = 3.67$ ? Is this an acid, base, or neutral?

### 16.5. Strong Acid and Base Practice Problems

1. What is the pH of a 0.040 M solution of  $\text{HClO}_4$ ?

2. What is the pH of a 0.011 M solution of  $\text{Ca}(\text{OH})_2$ ?