

**Problem of the Day 29      CHEM 1252**

1. Briefly describe the difference between a "weak" and "strong" acid.

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2. Fill in the table with appropriate values. You must show your work.

[ HO <sup>-</sup> ]	[ H <sup>+</sup> ]	The solution is:    ( <i>Circle One</i> )
4.57 x 10 <sup>-6</sup>		acidic.  basic.  neutral.
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3. Arrange the following 0.20 M aqueous solutions in order of **decreasing** pH: HNO<sub>3</sub>, KCN, NaCl, HF, and NaNH<sub>2</sub>. *You must justify your answer.*

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4. Which of the following solutions has the highest pH? You must justify your answers.

a. A 0.1 M solution of a strong acid or a 0.1 M solution of a weak acid.

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b. A 0.1 M solution of an acid with  $K_a = 2 \times 10^{-3}$  or one with  $K_a = 8 \times 10^{-6}$

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c. A 0.1 M solution of a base with  $pK_b = 4.5$  or one with  $pK_b = 6.5$ .

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5. Arrange the following 0.010 M solutions in order of **increasing** pH.  $\text{NH}_3(\text{aq})$ ,  $\text{HNO}_3(\text{aq})$ ,  $\text{NaNO}_2(\text{aq})$ ,  $\text{CH}_3\text{CO}_2\text{H}(\text{aq})$ ,  $\text{NaOH}(\text{aq})$ ,  $\text{NH}_4\text{ClO}_4(\text{aq})$ . Don't forget about your acid strength table.

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