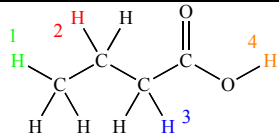


Chapter 19 Jeopardy Review Game

	Value	Question	Answer
Properties	200	How do acids taste?	Sour
	400	Do bases feel slippery, rough, fuzzy, or cold?	Slippery
	600	Acids and bases are both what, meaning they conduct electricity?	Electrolytes
	800	Which compound(s) are corrosive to skin?	Both
	1000	When acids react with metals, what gas is evolved?	H ₂
Models	200	In the Arrhenius model, what do bases produce in aqueous solutions?	OH ⁻ ions
	400	In the Brønsted model, what do acids donate?	H ⁺ , a proton
	600	What is the conjugate base of H ₂ PO ₄ ⁻ ?	HPO ₄ ²⁻
	800	In the reaction, CO ₃ ²⁻ (aq) + HSO ₄ ⁻ (aq) ⇌ HCO ₃ ⁻ (aq) + SO ₄ ²⁻ (aq), which species is the conjugate acid?	HCO ₃ ⁻
	1000	When HClO ₂ (aq) reacts with CH ₃ NH ₂ (aq), HClO ₂ (aq) + CH ₃ NH ₂ (aq) ⇌ ?, what is the conjugate base produced, including charge?	ClO ₂ ⁻
Strengths	200	To what extent, or percentage, do strong acids dissociate or ionize?	Completely
	400	As the acid ionization constant, K _a , decreases, what happens to acid strength?	It decreases
	600	Which is a stronger base: methylamine, CH ₃ NH ₂ (K _b = 4.3×10 ⁻⁴) or aniline, C ₆ H ₅ NH ₂ (K _b = 4.3×10 ⁻¹⁰)?	Methylamine
	800	Which would conduct electricity better, a 0.1 M solution of HC ₂ H ₃ O ₂ (K _a = 1.8×10 ⁻⁵) or a 0.1 M solution of HNO ₂ (K _a = 4.6×10 ⁻⁴)?	HNO ₂
	1000	Which is stronger: the O–H bond in a weak acid or in a strong acid?	Weak Acid
pH	200	The pH scale generally includes what range of values?	0 to 14
	400	Is a solution with pH = 5 acidic, basic, or neutral?	Acidic
	600	What is the pH of a solution with pOH = 2?	12
	800	What value does the product [H ⁺][OH ⁻] have at 25°C?	1.0×10 ⁻¹⁴
	1000	Which solution has a lower pH: a 0.1 M solution of HCl (K _a very large) or a 0.1 M solution of HC ₃ H ₅ O ₂ , propionic acid (K _a = 1.4×10 ⁻⁵)?	HCl (the stronger acid)
Neutralization	200	When acids and bases are neutralized, what two kinds of products are formed?	Water & Salt
	400	What is true of the number of H ⁺ and OH ⁻ ions when neutralized?	They must be =
	600	What is the procedure used to determine the concentration of an unknown solution?	Titration
	800	During titration of a weak acid with a strong base, will the pH at the equivalence point be acidic (<7), neutral (=7), or basic (>7)?	Basic (>7)
	1000	How many water molecules would be formed in the balanced neutralization equation of Al(OH) ₃ with HCl to form AlCl ₃ and H ₂ O?	3
Potpourri	200	What is the name for HCl?	hydrochloric acid
	400	What is the pH of a 1.0×10 ⁻³ M solution of HBr, a strong acid?	3.00
	600	What are compounds that can act as both acids and bases called?	Amphoteric
	800	In the article, "Acid Rain," oxides of what two elements are responsible for the formation of acid rain?	Nitrogen & Sulfur
	1000	Identify the acidic H in the diagram below:	

Final Jeopardy Category: Equilibrium Calculations

 What is the concentration of a solution of H₂SO₄ if 10.0 mL requires 40.0 mL of 0.20 M NaOH to neutralize?

$$\text{mol H}_2\text{SO}_4 = 40.0 \text{ mL NaOH} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times \frac{0.20 \text{ mol}}{1 \text{ L}} \times \frac{1 \text{ mol H}_2\text{SO}_4}{2 \text{ mol NaOH}} = 0.0040 \text{ mol H}_2\text{SO}_4$$

$$M_{\text{H}_2\text{SO}_4} = \frac{0.0040 \text{ mol H}_2\text{SO}_4}{10.0 \text{ mL}} \times \frac{1000 \text{ mL}}{1 \text{ L}} = 0.40 \text{ M}$$