

Exercise 4.2

Solution Formation

Name: _____

Date: _____ Per: _____

DIRECTIONS: Complete the following in the space provided:

- Differentiate between what happens when the following are added to water.
 - Polar solute versus nonpolar solute: _____

 - KF versus $C_6H_{12}O_6$: _____

 - RbCl (strong electrolyte) vs AgCl (weak electrolyte): _____

 - HNO_3 versus CO: _____

- Which of the following statements is(are) true? **For the false statements, correct them.**
 - A concentrated solution in water will always contain a strong or weak electrolyte. _____

 - A strong electrolyte will break up into ions when dissolved in water. _____

 - An acid is a strong electrolyte. _____

 - All ionic compounds are strong electrolytes in water. _____

- Show how each of the following strong electrolytes “breaks up” into its component ions upon dissolving water by drawing molecular level pictures.

a. $MgCl_2$	b. $HClO_4$
c. $Al(NO_3)_3$	d. $(NH_4)_2SO_4$

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4. Calcium chloride is a strong electrolyte and is used to “salt” streets in the winter to melt ice and snow. Write a reaction to show how this substance breaks apart when it dissolves in water.

5. Commercial cold packs and hot packs are available for treating athletic injuries. Both types contain a pouch of water and a dry chemical. When the pack is struck, the pouch of water breaks, dissolving the chemical, and the solution becomes either hot or cold. Many hot packs use magnesium sulfate, and many cold packs use ammonium nitrate. Write equations to show how these strong electrolytes break apart when they dissolve in water.

Hot Packs: _____

Cold Packs: _____





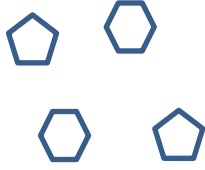
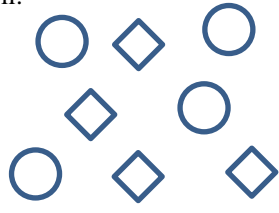
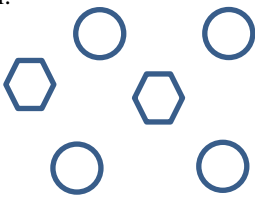
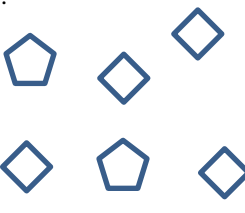
6. Match each name below with the following microscopic pictures of that compound in aqueous solution.

a. Barium nitrate: _____

c. Potassium carbonate: _____

b. Sodium chloride: _____

d. Magnesium sulfate: _____

 = 1+	 = 1-	 = 2+	 = 2-
i. 	ii. 	iii. 	iv. 

7. Draw particulate (microscopic) drawing of what happens when each of the following solutes are added to water.

a. NaCl (strong electrolyte)	b. HF (weak electrolyte)	c. C ₁₂ H ₂₂ O ₁₁ (soluble nonelectrolyte)	d. MgCO ₃ (insoluble compound)