


## Formula of a Hydrate PRELAB EXERCISE

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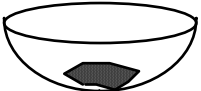
A clean evaporating dish was weighed and found to have a mass of 20.00 g. A sample of hydrated calcium chloride was placed in the evaporating dish and weighed. The mass of the evaporating dish containing the sample was 24.00 g. The evaporating dish containing the sample was then heated for ten minutes to drive off all of the water. The evaporating dish with sample was allowed to cool and then reweighed. The mass of the sample and evaporating dish after heating was 23.02 g.

Answer the following questions:


1. a) What is the mass of the sample of hydrated calcium chloride? \_\_\_\_\_ g  
 b) Explain how you arrived at this answer: \_\_\_\_\_
  2. a) What was the mass of the water that was in the sample? \_\_\_\_\_ g  
 b) Explain how you arrived at this answer: \_\_\_\_\_
  3. a) What was the mass of the anhydrous calcium chloride after heating? \_\_\_\_\_ g  
 b) Explain how you arrived at this answer: \_\_\_\_\_
  4. a) How much of a mole of water molecules was in the hydrated calcium chloride sample? \_\_\_\_\_ mole of H<sub>2</sub>O molecules  
 b) Explain how you arrived at this answer: \_\_\_\_\_
  5. a) How many moles of calcium chloride (CaCl<sub>2</sub>) formula units is in the hydrated calcium chloride sample?  
 \_\_\_\_\_ moles of CaCl<sub>2</sub> formula units  
 b) Explain how you arrived at this answer: \_\_\_\_\_
  6. a) How many water molecules for every formula unit of calcium chloride were in the hydrated calcium chloride sample?  
 \_\_\_\_\_ H<sub>2</sub>O molecules per calcium chloride formula unit  
 b) Explain how you arrived at this answer: \_\_\_\_\_
7. What is the formula of hydrated calcium chloride? CaCl<sub>2</sub> • \_\_\_\_\_ H<sub>2</sub>O



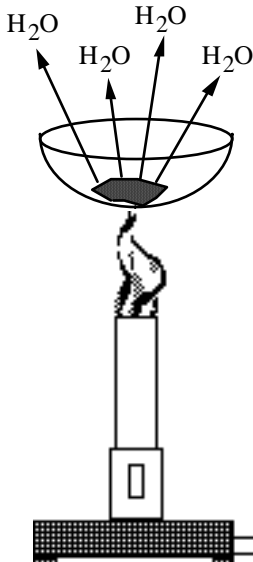
Mass of empty evaporating dish = 20.00 g

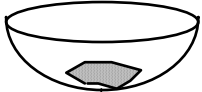


Mass of evaporating dish with sample of **hydrated** calcium chloride = 24.00 g




Mass of hydrated calcium chloride sample = \_\_\_\_\_ g





Mass of evaporating dish with sample of calcium chloride **after heating** = 23.02 g

1. Mass of the water that was in the **hydrated** calcium chloride sample = \_\_\_\_\_ g

2. Mass of anhydrous (without water) calcium chloride in the sample = \_\_\_\_\_ g  
 That is  weighs \_\_\_\_\_ g

3. How much of a mole of water molecules in the **hydrated** calcium chloride sample = \_\_\_\_\_ mol

4. How much of a mole of calcium chloride in the **hydrated** calcium chloride sample = \_\_\_\_\_ g