

**DETERMINATION OF A FORMULA BY TITRATION****Experiment 9****Data:**

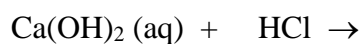
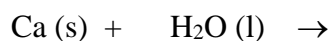
Mass of calcium + weighing paper	
Mass of weighing paper	
Mass of calcium	
Final buret reading	
Initial buret reading	
Net volume of HCl titrant	
Molarity of HCl titrant	

**Calculations:**

	<i>Answer</i>	<i>Show Work</i>
Moles of calcium		
Moles of HCl titrant required to titrate		
Mole ratio of HCl to Ca		
Mole ratio of HCl to Ca (rounded to nearest integer)		
Mole ratio of HCl to $\text{OH}^-$		
Mole ratio of $\text{OH}^-$ to Ca		
Formula of calcium hydroxide		

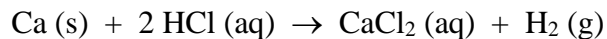
**Questions:**

1. Write two balanced equations describing the reactions of zinc and calcium with hydrochloric acid.
2. Which gas is produced in the reactions in question 1? How did you confirm the identity of this gas?
3. Complete and balance the equations below that take place when calcium metal is added to water and when the products are titrated with HCl solution:



Combine the two reactions above and write the net overall reaction:

4. If some of the calcium metal remains unreacted after the first step, the following reaction would occur when HCl is added during titration:



Would this cause an error in your titration result? Give an explanation for your answer.