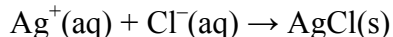


CHAPTER 7	Investigation 7.A: Qualitative Analysis Answer Key	BLM 7.1.7A
ANSWER KEY		

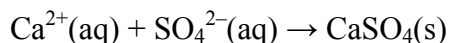
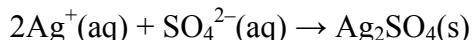
### Answers to Analysis Questions

1. (a) The  $\text{Ag}^+(\text{aq})$  will form a precipitate when hydrochloric acid is added.



(b) You should be able to predict this reaction using your solubility guidelines.

2. (a) Both the  $\text{Ag}^+(\text{aq})$  and the  $\text{Ca}^{2+}(\text{aq})$  will form a precipitate when the sulfuric acid is added.



(b) You should be able to predict these reactions using your solubility guidelines.

3. Sodium, calcium and copper(II) ions will form soluble chlorides. Sodium and copper(II) ions will form soluble sulfates.

4.  $\text{Cu}^{2+}(\text{aq})$  is blue.

5. Clues to use are: silver ions form a precipitate with both acids; calcium ions form a precipitate with only sulfuric acid; and copper(II) ions make a blue-coloured solution. Sodium ions will need to be confirmed by a flame test, however, because they do not form any precipitates and are colourless in solution.

6. The flame test should easily show the difference between calcium ions (which produce a red-orange colour) and sodium ions (which produce a yellow colour).

### Answer to Conclusion Question

7. Given the above clues, you should be able to identify each of the cations and anions and to match them up with the appropriate letter given by the teacher. If you have correctly identified the ions, you should have confidence in your decisions and no further action will be required. If you have not correctly identified the ions, you might retest some of the solutions or perform the test on a fresh sample of the solution if you feel it may be contaminated, or that you would like to have other solutions to test your unknowns (ones not provided in the investigation).