Year 12 Science: Qualitative analysis: which ions are in the sample?

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. A solution gives a white precipitate with NaOH that dissolves in excess, and a white precipitate with NH_3 that also dissolves in excess. Which cation is present?

2. Write the ionic equation for a few drops of NaOH added to a solution of Cu^{2+} ions.

3. Excess ammonia then turns that precipitate into a deep blue solution. Write the equation.

4. A white precipitate with NaOH dissolves in excess. With NH_3 the white precipitate stays, and with KI a bright yellow precipitate forms. Name the cation and write the equation for the yellow precipitate.

5. Why is the sample acidified with dilute nitric acid before silver nitrate is added?

6. Tank water from an old house contains 3 mg/L of copper. Is it within the drinking water standard?

Fix the mistake

7. Correct this statement: "White precipitate with NaOH, so it is Zn^{2+}."

8. Correct this statement: "$2NaOH + CuSO_4 \rightarrow Cu(OH)_2 + Na_2SO_4$ is my ionic equation."

9. Correct this statement: "I tipped in lots of NaOH at once and saw a clear solution, so there was no precipitate."

10. Correct this statement: "The green precipitate went brown on top, so the ion is Fe^{3+}."