Writing ionic equations

# Write balanced ionic equations for the reactions that take place when the following solutions are mixed. Include state symbols in your equations.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | | | Copper chloride solution is mixed with potassium hydroxide solution. | | | |
|  | | | Cu2+(aq) + 2OH-(aq) Cu(OH)2(s) | | | |
| **2** | | | 2 mL of calcium nitrate solution is added to 2 mL of zinc sulfate solution. | | | |
|  | | | Ca2+(aq) + SO42-(aq) CaSO4(s) | | | |
| **3** | | | A few drops of sodium carbonate solution is added to 5 mL of magnesium chloride solution. | | | |
|  | | | Mg2+(aq) + CO32-(aq) MgCO3(s) | | | |
| **4** | | | A little potassium iodide solution is poured into a beaker containing lead nitrate solution. | | | |
|  | Pb2+(aq) + 2I-(aq) PbI2(s) | |
| **5** | | | Ammonia solution is added to a precipitate of zinc hydroxide. | |
|  | | | Zn2+(aq) + NH3(aq) [Zn(NH3)4]2+(aq) | |
| **6** | | | Limewater (calcium hydroxide solution) is added to aluminium chloride solution. | |
|  | | | Al3+(aq) + 3OH-(aq) Al(OH)3(s) | |
| **7** | | | Excess sodium hydroxide solution is added to a precipitate of lead hydroxide. | |
|  | | | Pb(OH)2(s) + 2OH-(aq) [Pb(OH)4]2-(aq) | |
| **8** | | | Iron(II) sulfate solution is added to potassium carbonate solution. | |
|  | | | Fe2+(aq) + CO32-(aq) FeCO3(s) | |
| **9** | | | A few drops of copper chloride solution are added to silver nitrate solution. | |
|  | | | Ag+(aq) + Cl-(aq) AgCl(s) | |
| **10** | | | 2 mL of ammonium hydroxide solution is added to 2 mL of iron(III) chloride solution. | |
|  | | | Pb2+(aq) + 2OH-(aq) Pb(OH)2(s) | | |
| **11** | | | Ammonia solution is added to a precipitate of copper hydroxide. | | | |
|  | | | Cu(OH)2(s) + 4NH3(aq) [Cu(NH3)4]2+(aq) | | | |
| **12** | | | A few drops of lead nitrate solution are added to iron(II) sulfate solution. | | | |

Pb2+(aq) + SO42-(aq) PbSO4(s)