Predicting Precipitates
Samples

① Identify the precipitate formed when the following ionic compounds are mixed:

$H_2SO_{4(aq)} + BaCl_{2(aq)} \rightarrow$

Predict products (double replacement)

$H_2SO_4 + BaCl_2 \rightarrow BaSO_4 + HCl$

for $BaSO_4$

	SO_4^{-2}
High Solubility (aq)	most
Low Solubility (s)	Ag^+, Pb^{+2}, Ca^{+2}, Ba^{+2}, Sr^{+2}, Ra^{+2}

- SO_4^{-2} is the anion, so use this column
- Ba^{+2} is the cation
- low solubility, therefore $BaSO_{4(s)}$

for HCl

	Cl^-, Br^- I^-
High Solubility (aq)	most
low Solubility (s)	Ag^+, Pb^{+2}, Tl^+, Hg_2^{+2}, (Hg^+), Cu^+

- Cl^- is the anion so use this column
- H^+ is the cation
- H^+ is not listed in the low solubility row so we assume it is part of the "most" in the high solubility row, therefore $HCl_{(aq)}$

$H_2SO_{4(aq)} + BaCl_{2(aq)} \rightarrow BaSO_{4(s)} + HCl_{(aq)}$

precipitate

② Identify the precipitate formed when the following ionic compounds are mixed:

$Al_2(SO_4)_{3(aq)} + NH_4OH_{(aq)} \rightarrow$

$Al_2(SO_4)_{3(aq)} + NH_4OH_{(aq)} \rightarrow Al(OH)_{3(s)} + (NH_4)_2SO_{4(aq)}$

double replacement reaction to predict products

from solubility table