

Name: \_\_\_\_\_

Blk: \_\_\_\_\_ Date: \_\_\_\_\_

Chemistry 11  
Predicting Products Practice

1. **Complete and balance** the following reactions, be sure to include the **phases** of the products!

- a.  $\text{H}_2\text{SO}_4(\text{aq}) + \text{Ca}(\text{OH})_2(\text{aq}) \rightarrow \text{CaSO}_4(\text{s}) + 2\text{H}_2\text{O}(\text{l})$
- b.  $\text{AgNO}_3(\text{aq}) + \text{NaCl}(\text{aq}) \rightarrow \text{AgCl}(\text{s}) + \text{NaNO}_3(\text{aq})$
- c.  $2\text{H}_3\text{PO}_4(\text{aq}) + 3\text{Ba}(\text{OH})_2(\text{aq}) \rightarrow \text{Ba}_3(\text{PO}_4)_2(\text{s}) + 6\text{H}_2\text{O}(\text{l})$
- d.  $\text{Zn}(\text{NO}_3)_2(\text{aq}) + \text{Li}_2\text{S}(\text{aq}) \rightarrow \text{ZnS}(\text{s}) + 2\text{LiNO}_3(\text{aq})$
- e.  $3\text{H}_2\text{SO}_3(\text{aq}) + 2\text{Fe}(\text{OH})_3(\text{aq}) \rightarrow \text{Fe}_2(\text{SO}_3)_3(\text{s}) + 6\text{H}_2\text{O}(\text{l})$
- f.  $\text{Na}_2\text{S}(\text{aq}) + \text{Ba}(\text{NO}_3)_2(\text{aq}) \rightarrow \text{BaS}(\text{aq}) + 2\text{NaNO}_3(\text{aq})$

2. **Complete and balance** the following chemical equations, be sure to **classify the type** and include **phases** in your answer:

- N  
a.  $\text{H}_2\text{CO}_3(\text{aq}) + \text{Sr}(\text{OH})_2(\text{aq}) \rightarrow \text{SrCO}_3(\text{s}) + 2\text{H}_2\text{O}(\text{l})$
- SR  
b.  $\text{Zn}(\text{s}) + \text{Ni}(\text{NO}_3)_2(\text{aq}) \rightarrow \text{Zn}(\text{NO}_3)_2(\text{aq}) + \text{Ni}(\text{s})$
- S  
c. (forms a solid):  $2\text{Al}(\text{s}) + 3\text{Cl}_2(\text{g}) \rightarrow 2\text{AlCl}_3(\text{s})$
- D  
d.  $8\text{SO}_2(\text{g}) \rightarrow \text{S}_8(\text{s}) + 8\text{O}_2(\text{g})$
- C  
e.  $\text{C}_9\text{H}_{20}\text{O}_4\text{N}_2(\text{s}) + \text{O}_2(\text{g}) \rightarrow 9\text{CO}_2(\text{g}) + 10\text{H}_2\text{O}(\text{g}) + 2\text{NO}_2(\text{g})$
- S  
f. (forms a solid):  $\text{Zn}(\text{s}) + \text{Cl}_2(\text{g}) \rightarrow \text{ZnCl}_2(\text{s})$
- N  
g.  $\text{HCl}(\text{aq}) + \text{KOH}(\text{aq}) \rightarrow \text{KCl}(\text{aq}) + \text{H}_2\text{O}(\text{l})$
- DR  
h.  $2\text{Na}_3\text{PO}_4(\text{aq}) + 3\text{Ca}(\text{OH})_2(\text{aq}) \rightarrow \text{Ca}_3(\text{PO}_4)_2(\text{s}) + 6\text{NaOH}(\text{aq})$
- SR  
i.  $\text{Mg}(\text{s}) + \text{ZnSO}_4(\text{aq}) \rightarrow \text{MgSO}_4(\text{aq}) + \text{Zn}(\text{s})$

where S = synthesis      D = decomposition  
SR = single replacement      DR = double replacement  
N = neutralization      C = combustion