

Key to Predicting Products

$$2(a-r)$$

- a)  $2\text{HNO}_3(\text{aq}) + \text{Sr}(\text{OH})_2(\text{aq}) \rightarrow \text{Sr}(\text{NO}_3)_2(\text{aq}) + 2\text{H}_2\text{O}(\text{l})$  (neutralization)
- b)  $2\text{C}_6\text{H}_5(\text{OH})_2(\text{s}) + 13\text{O}_2(\text{g}) \rightarrow 12\text{CO}_2(\text{g}) + 6\text{H}_2\text{O}(\text{g})$  (combustion)
- c)  $\text{Zn}(\text{s}) + \text{Ni}(\text{NO}_3)_2(\text{aq}) \rightarrow \text{Ni}(\text{s}) + \text{Zn}(\text{NO}_3)_2(\text{aq})$  (single replacement)
- d)  $2\text{AlCl}_3(\text{aq}) + 3\text{Na}_2\text{CO}_3(\text{aq}) \rightarrow \text{Al}_2(\text{CO}_3)_3(\text{s}) + 6\text{NaCl}(\text{aq})$  (double replacement)
- e)  $4\text{Al}(\text{s}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{Al}_2\text{O}_3(\text{s})$  (synthesis)
- f)  $\text{Ba}(\text{OH})_2(\text{aq}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{H}_2\text{O}(\text{l})$  (neutralization)
- g)  $2\text{NO}_2(\text{g}) \rightarrow \text{N}_2(\text{g}) + 2\text{O}_2(\text{g})$  (decomposition)
- h)  $\text{Cl}_2(\text{g}) + \text{CaBr}_2(\text{aq}) \rightarrow \text{Br}_2(\text{l}) + \text{CaCl}_2(\text{aq})$  (single replacement)
- i)  $9\text{H}_2\text{O}_2\text{S}_2(\text{s}) + 14\text{O}_2(\text{g}) \rightarrow 9\text{CO}_2(\text{g}) + 10\text{H}_2\text{O}(\text{g}) + 2\text{SO}_2(\text{g})$  (combustion)
- j)  $\text{ZnSO}_4(\text{aq}) + \text{SrCl}_2(\text{aq}) \rightarrow \text{SrSO}_4(\text{s}) + \text{ZnCl}_2(\text{aq})$  (double replacement)
- k)  $8\text{Zn}(\text{s}) + \text{S}_8(\text{s}) \rightarrow 8\text{ZnS}(\text{s})$  (synthesis)
- l)  $2\text{NH}_3(\text{g}) \rightarrow \text{N}_2(\text{g}) + 3\text{H}_2(\text{g})$  (decomposition)
- m)  $\text{HCl}(\text{aq}) + \text{KOH}(\text{aq}) \rightarrow \text{KCl}(\text{aq}) + \text{H}_2\text{O}(\text{l})$  (neutralization)
- n)  $2\text{ICl}(\text{s}) \rightarrow \text{I}_2(\text{s}) + \text{Cl}_2(\text{g})$  (decomposition)
- o)  $2\text{Na}_3\text{PO}_4(\text{aq}) + 3\text{Ca}(\text{OH})_2(\text{aq}) \rightarrow \text{Ca}_3(\text{PO}_4)_2(\text{s}) + 6\text{NaOH}(\text{aq})$  (double replacement)
- p)  $\text{C}_4\text{H}_8\text{S}(\text{l}) + 7\text{O}_2(\text{g}) \rightarrow 4\text{CO}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g}) + \text{SO}_2(\text{g})$  (combustion)
- q)  $\text{Mg}(\text{s}) + \text{ZnSO}_4(\text{aq}) \rightarrow \text{Zn}(\text{s}) + \text{MgSO}_4(\text{aq})$  (single replacement)
- r)  $4\text{Li}(\text{s}) + \text{O}_2(\text{g}) \rightarrow 2\text{Li}_2\text{O}(\text{s})$  (synthesis)