

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

### Mole Relations in Balanced Equations

- For the reaction  $2 \text{N}_2\text{H}_4 (\text{l}) + \text{N}_2\text{O}_4 (\text{l}) \rightarrow 3 \text{N}_2 (\text{g}) + 4 \text{H}_2\text{O} (\text{l})$ :
  - \_\_\_\_\_ mol of  $\text{N}_2\text{O}_4$  is needed to react with 4.2 mol  $\text{N}_2\text{H}_4$
  - 5 mol  $\text{N}_2\text{H}_4$  yields \_\_\_\_\_ mol  $\text{N}_2$
  - 2.3 mol of  $\text{N}_2\text{O}_4$  produces \_\_\_\_\_ mol of  $\text{H}_2\text{O}$
- For the reaction  $\text{Ca}_3\text{N}_2 (\text{s}) + 6 \text{H}_2\text{O} \rightarrow 3 \text{Ca}(\text{OH})_2 (\text{s}) + 2 \text{NH}_3 (\text{g})$ :
  - \_\_\_\_\_ mol of  $\text{H}_2\text{O}$  is needed to react with 2.5 mol  $\text{Ca}_3\text{N}_2$
  - 1.6 mol  $\text{Ca}_3\text{N}_2$  yields \_\_\_\_\_ mol  $\text{NH}_3$
  - 0.62 mol  $\text{H}_2\text{O}$  produces \_\_\_\_\_ mol  $\text{Ca}(\text{OH})_2$
- For the reaction  $\text{B}_2\text{O}_3 (\text{s}) + 6 \text{HF} (\text{l}) \rightarrow 2 \text{BF}_3 (\text{s}) + 3 \text{H}_2\text{O} (\text{l})$ :
  - 4.2 mol HF yields \_\_\_\_\_ mol  $\text{BF}_3$
  - 5.1 mol  $\text{B}_2\text{O}_3$  produces \_\_\_\_\_ mol  $\text{H}_2\text{O}$
  - 139 g of  $\text{B}_2\text{O}_3$  yields \_\_\_\_\_ g  $\text{BF}_3$
  - 278.4 g of  $\text{B}_2\text{O}_3$  produces \_\_\_\_\_ ml  $\text{H}_2\text{O}$