

# BALANCING EQUATIONS WORKSHEET #1

| Q# | Balance the following equations and show that you checked your work the way we did in class   |
|----|---|
| 1  | $\underline{\hspace{1cm}} \text{C}_2\text{H}_6(\text{g}) + \underline{\hspace{1cm}} \text{O}_2(\text{g}) \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O}(\text{g}) + \underline{\hspace{1cm}} \text{CO}_2(\text{g})$ <div> <div>C:</div> <div>O:</div> <div>H:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div>   |
| 2  | $\underline{\hspace{1cm}} \text{O}_2 + \underline{\hspace{1cm}} \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O} + \underline{\hspace{1cm}} \text{CO}_2$ <div> <div>C:</div> <div>O:</div> <div>H:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div>  |
| 3  | $\underline{\hspace{1cm}} \text{Br}_2(\text{g}) + \underline{\hspace{1cm}} \text{H}_2\text{O}(\text{l}) + \underline{\hspace{1cm}} \text{SO}_2(\text{g}) \rightarrow \underline{\hspace{1cm}} \text{HBr}(\text{aq}) + \underline{\hspace{1cm}} \text{H}_2\text{SO}_4(\text{aq})$ <div> <div>Br:</div> <div>S:</div> <div>O:</div> <div>H:</div> <div>Br:</div> <div>S:</div> <div>O:</div> <div>H:</div> </div> |
| 4  | $\underline{\hspace{1cm}} \text{KOH} + \underline{\hspace{1cm}} \text{H}_3\text{PO}_4 \rightarrow \underline{\hspace{1cm}} \text{K}_3\text{PO}_4 + \underline{\hspace{1cm}} \text{H}_2\text{O}$ <div> <div>K:</div> <div>P:</div> <div>O:</div> <div>H:</div> <div>K:</div> <div>P:</div> <div>O:</div> <div>H:</div> </div>  |
| 5  | $\underline{\hspace{1cm}} \text{Mg} + \underline{\hspace{1cm}} \text{N}_2 \rightarrow \underline{\hspace{1cm}} \text{Mg}_3\text{N}_2$ <div> <div>Mg:</div> <div>N:</div> <div>Mg:</div> <div>N:</div> </div>  |
| 6  | $\underline{\hspace{1cm}} \text{KNO}_3(\text{s}) \rightarrow \underline{\hspace{1cm}} \text{KNO}_2(\text{s}) + \underline{\hspace{1cm}} \text{O}_2(\text{g})$ <div> <div>K:</div> <div>N:</div> <div>O:</div> <div>K:</div> <div>N:</div> <div>O:</div> </div>  |
| 7  | $\underline{\hspace{1cm}} \text{Fe} + \underline{\hspace{1cm}} \text{H}_2\text{SO}_4 \rightarrow \underline{\hspace{1cm}} \text{Fe}_2(\text{SO}_4)_3 + \underline{\hspace{1cm}} \text{H}_2$ <div> <div>Fe:</div> <div>H:</div> <div>S:</div> <div>O:</div> <div>Fe:</div> <div>H:</div> <div>S:</div> <div>O:</div> </div>  |

|    |  |
|----|--|
| 8  | $\underline{\hspace{1cm}} \text{MgCO}_3(\text{s}) \rightarrow \underline{\hspace{1cm}} \text{MgO}(\text{s}) + \underline{\hspace{1cm}} \text{CO}_2(\text{g})$ <div> <div>Mg:</div> <div>C:</div> <div>O:</div> <div>Mg:</div> <div>C:</div> <div>O:</div> </div>   |
| 9  | $\underline{\hspace{1cm}} \text{C}_8\text{H}_{18}(\text{l}) + \underline{\hspace{1cm}} \text{O}_2(\text{g}) \rightarrow \underline{\hspace{1cm}} \text{CO}_2(\text{g}) + \underline{\hspace{1cm}} \text{H}_2\text{O}(\text{g})$ <div> <div>C:</div> <div>O:</div> <div>H:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div>   |
| 10 | $\underline{\hspace{1cm}} \text{K}_2\text{CO}_3(\text{s}) + \underline{\hspace{1cm}} \text{H}_3\text{PO}_4(\text{aq}) \rightarrow \underline{\hspace{1cm}} \text{K}_3\text{PO}_4(\text{aq}) + \underline{\hspace{1cm}} \text{H}_2\text{O}(\text{l}) + \underline{\hspace{1cm}} \text{CO}_2(\text{g})$ <div> <div>K:</div> <div>P:</div> <div>C:</div> <div>O:</div> <div>H:</div> <div>K:</div> <div>P:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div> |
| 11 | $\underline{\hspace{1cm}} \text{PbCO}_3(\text{s}) + \underline{\hspace{1cm}} \text{HNO}_3(\text{aq}) \rightarrow \underline{\hspace{1cm}} \text{Pb}(\text{NO}_3)_2(\text{aq}) + \underline{\hspace{1cm}} \text{H}_2\text{O}(\text{l}) + \underline{\hspace{1cm}} \text{CO}_2(\text{g})$ <div> <div>Pb:</div> <div>N:</div> <div>C:</div> <div>O:</div> <div>H:</div> <div>Pb:</div> <div>N:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div>             |
| 12 | $\underline{\hspace{1cm}} \text{CaCO}_3 + \underline{\hspace{1cm}} \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \underline{\hspace{1cm}} \text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 + \underline{\hspace{1cm}} \text{H}_2\text{O} + \underline{\hspace{1cm}} \text{CO}_2$ <div> <div>Ca:</div> <div>C:</div> <div>O:</div> <div>H:</div> <div>Ca:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div>   |
| 13 | $\underline{\hspace{1cm}} \text{Na}_2\text{CO}_3(\text{s}) + \underline{\hspace{1cm}} \text{HCl}(\text{aq}) \rightarrow \underline{\hspace{1cm}} \text{NaCl}(\text{aq}) + \underline{\hspace{1cm}} \text{H}_2\text{O}(\text{l}) + \underline{\hspace{1cm}} \text{CO}_2(\text{g})$ <div> <div>Na:</div> <div>Cl:</div> <div>C:</div> <div>O:</div> <div>H:</div> <div>Na:</div> <div>Cl:</div> <div>C:</div> <div>O:</div> <div>H:</div> </div>                 |

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| Q# | Balance the following equations and show that you checked your work the way we did in class   |                       |                       |  |  |
|----|---|-----------------------|-----------------------|--|--|
| 1  | $\text{C}_2\text{H}_6(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{g}) + \text{CO}_2(\text{g})$                            | C:<br>O:<br>H:        | C:<br>O:<br>H:        |  |  |
| 2  | $\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow \text{H}_2\text{O} + \text{CO}_2$   | C:<br>O:<br>H:        | C:<br>O:<br>H:        |  |  |
| 3  | $\text{Br}_2(\text{g}) + \text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g}) \rightarrow \text{HBr}(\text{aq}) + \text{H}_2\text{SO}_4(\text{aq})$ | Br:<br>S:<br>O:<br>H: | Br:<br>S:<br>O:<br>H: |  |  |
| 4  | $\text{KOH} + \text{H}_3\text{PO}_4 \rightarrow \text{K}_3\text{PO}_4 + \text{H}_2\text{O}$   | K:<br>P:<br>O:<br>H:  | K:<br>P:<br>O:<br>H:  |  |  |
| 5  | $\text{Mg} + \text{N}_2 \rightarrow \text{Mg}_3\text{N}_2$  |                       |                       |  |  |
| 6  | $\text{KNO}_3(\text{s}) \rightarrow \text{KNO}_2(\text{s}) + \text{O}_2(\text{g})$  | K:<br>N:<br>O:        | K:<br>N:<br>O:        |  |  |
| 7  | $\text{Fe} + \text{H}_2\text{SO}_4 \rightarrow \text{Fe}_2(\text{SO}_4)_3 + \text{H}_2$   | Fe:<br>S:<br>O:<br>H: | Fe:<br>S:<br>O:<br>H: |  |  |

|    |  |                             |                             |  |  |
|----|--|-----------------------------|-----------------------------|--|--|
| 8  | $\text{MgCO}_3(\text{s}) \rightarrow \text{MgO}(\text{s}) + \text{CO}_2(\text{g})$   | Mg:<br>C:<br>O:             | Mg:<br>C:<br>O:             |  |  |
| 9  | $\text{C}_8\text{H}_{18}(\text{l}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$  | C:<br>O:<br>H:              | C:<br>O:<br>H:              |  |  |
| 10 | $\text{K}_2\text{CO}_3(\text{s}) + \text{H}_3\text{PO}_4(\text{aq}) \rightarrow \text{K}_3\text{PO}_4(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$ | K:<br>C:<br>O:<br>P:<br>H:  | K:<br>C:<br>O:<br>P:<br>H:  |  |  |
| 11 | $\text{PbCO}_3(\text{s}) + \text{HNO}_3(\text{aq}) \rightarrow \text{Pb}(\text{NO}_3)_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$               | Pb:<br>N:<br>C:<br>O:<br>H: | Pb:<br>N:<br>C:<br>O:<br>H: |  |  |
| 12 | $\text{CaCO}_3 + \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 + \text{H}_2\text{O} + \text{CO}_2$                             | Ca:<br>C:<br>O:<br>H:       | Ca:<br>C:<br>O:<br>H:       |  |  |
| 13 | $\text{Na}_2\text{CO}_3(\text{s}) + \text{HCl}(\text{aq}) \rightarrow \text{NaCl}(\text{aq}) + \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$                     |                             |                             |  |  |