

Name:

Period:

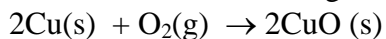
Hess's Law

Hess's Law is used to calculate the enthalpy changes for reactions that might be difficult or inconvenient to measure directly in a calorimeter.

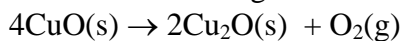
Directions: Show all of your work as you solve the following problems. Include units, labels and circle your answer.

1. Calculate ΔH for the following reaction:

$\Delta H = ?$



Given the following data



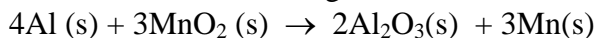
$\Delta H = +288\text{kJ}$



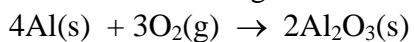
$\Delta H = +11\text{ kJ}$

2. Calculate ΔH for the following reaction:

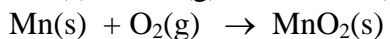
$\Delta H = ?$



Given the following reactions

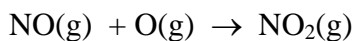


$\Delta H = -3352\text{ kJ}$



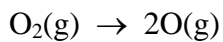
$\Delta H = -521\text{kJ}$

3. Determine ΔH for the reaction:

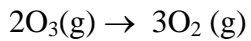


$$\Delta H = ?$$

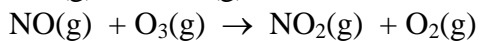
Given the following reactions



$$\Delta H = +495\text{kJ}$$



$$\Delta H = -427\text{kJ}$$



$$\Delta H = -199\text{kJ}$$

4. The enthalpy of combustion of solid carbon to form carbon dioxide is -393.7 kJ/mol C , and the enthalpy of combustion of carbon monoxide to form carbon dioxide is -283.3 kJ/mol CO . Using these data, calculate the change in enthalpy for the reaction: $2\text{C(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{CO(g)}$