

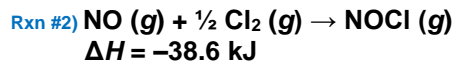
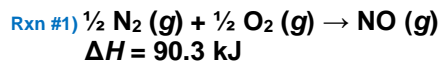
### N3 – Thermochemistry – Hess's Law

Definitions	
<b>Hess's Law</b>	
"In going from a particular set of reactants to a particular set of products, the change in enthalpy is the same whether the reaction takes place in one step or a series of steps."	
<b>Add Reactions</b>	+ $\Delta H$ 's
<b>Multiplying a Rxn by a factor</b>	$\times \Delta H$ by the factor
<b>Reversing a Rxn</b>	- $\Delta H$
<i>(opposite sign, not necessarily a negative value)</i>	
<b>Standard State</b>	
<ul style="list-style-type: none"> <li>Pure gas at 1 atm pressure</li> <li>Pure solid or liquid in its most stable form at 1 atm, and temp of interest (usually 25°C)</li> <li>Substances in a solution with a [ ] of 1M</li> </ul>	

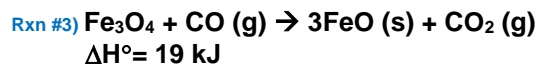
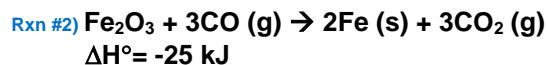
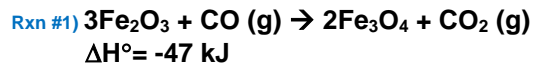
#### Hess's Law #1

#	Reaction	$\Delta H^\circ$
1	$C + 2H_2 \rightarrow CH_4$	-74.80 kJ
2	$C + O_2 \rightarrow CO_2$	-393.50 kJ
3	$H_2 + \frac{1}{2} O_2 \rightarrow H_2O$	-285.83 kJ

#### Hess's Law #2



#### Hess's Law #3



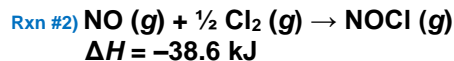
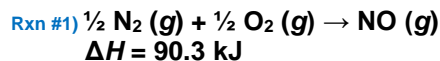
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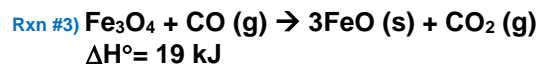
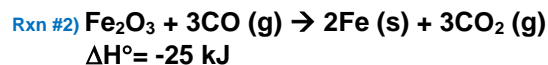
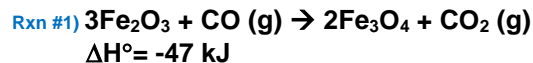
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#### Hess's Law #2



#### Hess's Law #3



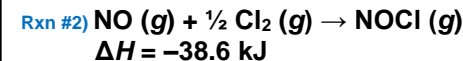
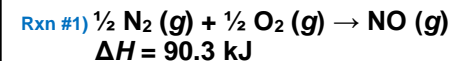
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#### Hess's Law #2



#### Hess's Law #3

