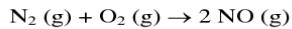


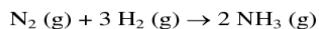
**Hess's Law Worksheet**

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

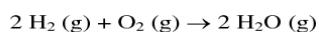
- 1. Calculate  $\Delta H$  for the reaction  $4 \text{ NH}_3(\text{g}) + 5 \text{ O}_2(\text{g}) \rightarrow 4 \text{ NO}(\text{g}) + 6 \text{ H}_2\text{O}(\text{g})$ , from the following data.**



$$\Delta H = -180.5 \text{ kJ}$$

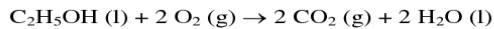


$$\Delta H = -91.8 \text{ kJ}$$

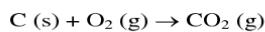


$$\Delta H = -483.6 \text{ kJ}$$

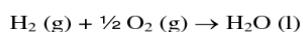
- 2. Find  $\Delta H^\circ$  for the reaction  $2\text{H}_2(\text{g}) + 2\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{C}_2\text{H}_5\text{OH}(\text{l})$ , using the following thermochemical data.**



$$\Delta H = -875 \text{ kJ}$$

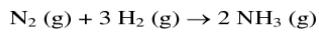


$$\Delta H = -394.51 \text{ kJ}$$

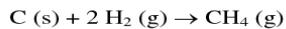


$$\Delta H = -285.8 \text{ kJ}$$

- 3. Calculate  $\Delta H$  for the reaction  $\text{CH}_4(\text{g}) + \text{NH}_3(\text{g}) \rightarrow \text{HCN}(\text{g}) + 3 \text{ H}_2(\text{g})$ , given:**



$$\Delta H = -91.8 \text{ kJ}$$



$$\Delta H = -74.9 \text{ kJ}$$



$$\Delta H = +270.3 \text{ kJ}$$