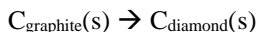
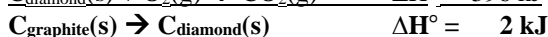
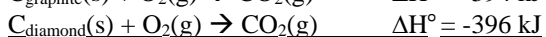
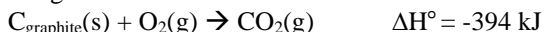


Hess's Law Answers

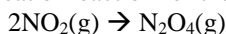
1. What is heat of reaction for the following reaction?



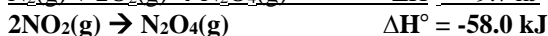
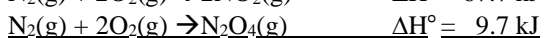
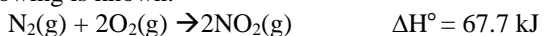
The following is known.

**(flip = +396)**

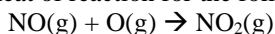
2. Calculate the heat of reaction for the following reaction.



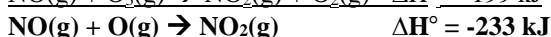
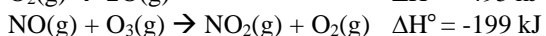
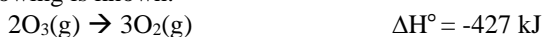
The following is known.

**(flip = -67.7 kJ)**

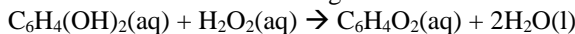
3. Calculate the heat of reaction for the following reaction:



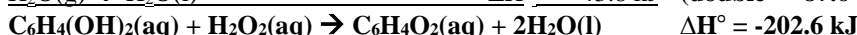
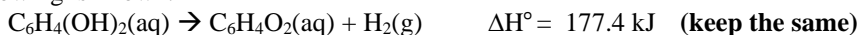
The following is known.

**(flip and 1/2 = +213.5 kJ)****(flip and 1/2 = +247.5 kJ)****(keep the same)**

4. Calculate the heat of reaction for the following reaction:



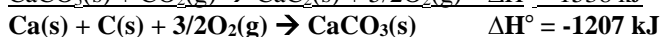
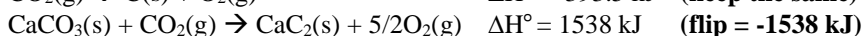
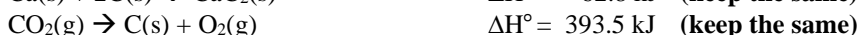
The following is known.



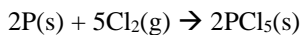
5. Calculate the heat of reaction for the following reaction:



The following is known.



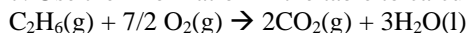
6. Calculate the heat of reaction for the following reaction:



The following is known.



7. Use the information in the table to calculate the enthalpy of this reaction.



Reaction	ΔH_f° , kJ·mol ⁻¹	What I did
$2\text{C}(\text{s}) + 3\text{H}_2(\text{g}) \rightarrow \text{C}_2\text{H}_6(\text{g})$	-84.7	Flip the reaction
$\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g})$	-393.5	x2
$\text{H}_2(\text{g}) + \frac{1}{2} \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$	-285.8	x3

(A) -764 kJ

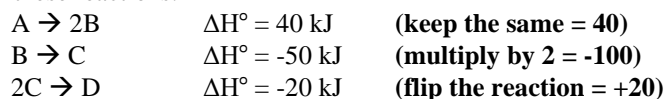
(B) -1560 kJ

(C) -1664 kJ

(D) -3120 kJ

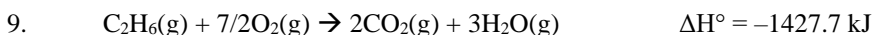
(E) -595 kJ

8. Given these reactions:

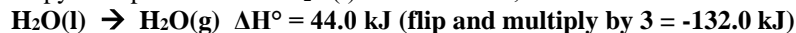


Calculate ΔH for the reaction; $D + A \rightarrow 4C$.

- (A) -100 kJ (B) -60 kJ (C) **-40 kJ** (D) 100 kJ (E) -30 kJ

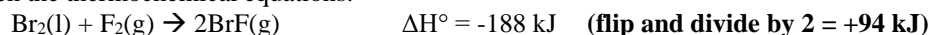


If the enthalpy of vaporization for $H_2O(l)$ is 44.0 kJ/mol, what is ΔH° for this reaction if $H_2O(l)$ is formed instead of $H_2O(g)$?



- (A) -1295.7 kJ (B) -1383.7 kJ (C) -1471.7 kJ (D) **-1559.7 kJ** (E) -1515.7 kJ

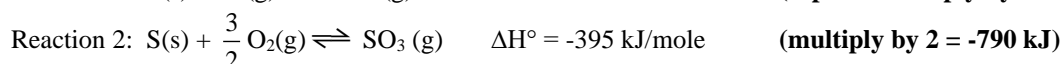
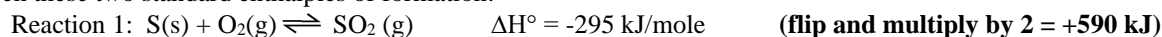
10. Given the thermochemical equations:



Determine ΔH° for the reaction: $BrF(g) + F_2(g) \rightarrow BrF_3(g)$ $\Delta H^\circ = ?$

- (A) -956 kJ (B) -580 kJ (C) **-290 kJ** (D) -478 kJ (E) 580 kJ

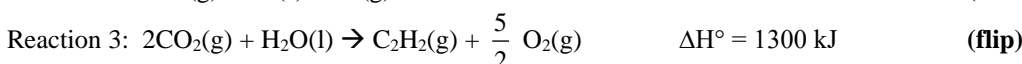
11. Given these two standard enthalpies of formation:



What is the heat of reaction for $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ under the same conditions?

- (A) -1380 kJ/mole (B) -690. kJ/mole (C) -295 kJ/mole (D) **-200. kJ/mole** (E) -100. kJ/mole

12. Given the following information:

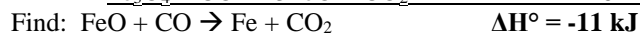
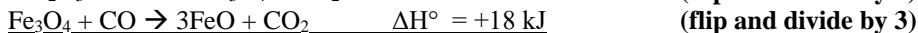
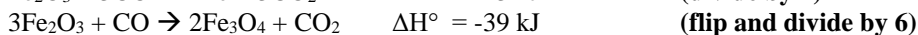


Find ΔH° for the reaction: $C_2H_2(g) \rightarrow 2C(s) + H_2(g)$

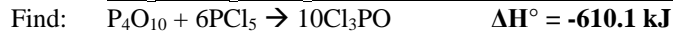
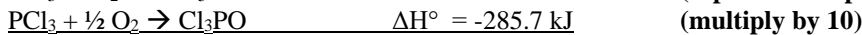
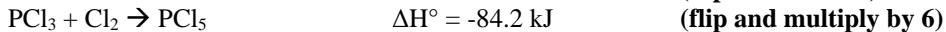
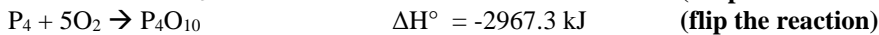
- (A) **-226 kJ** (B) -113 kJ (C) 113 kJ (D) 226 kJ (E) 452 kJ

Additional Practice Problems

1. Calculate the ΔH° the following problems using Hess's law.



2. Calculate the ΔH° the following problems using Hess's law.



3. Calculate the ΔH° the following problems using Hess's law.

