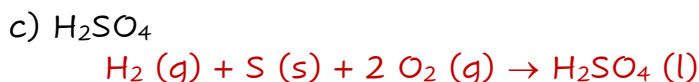
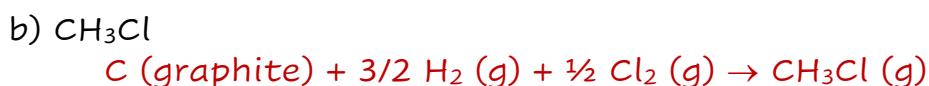


## Heats of Formation, $\Delta H^\circ_f$

You can find the standard enthalpies of formation in the appendix of your textbook or at the following link:

### Standard Enthalpies of Formation

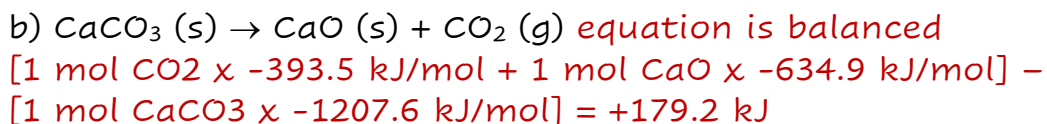
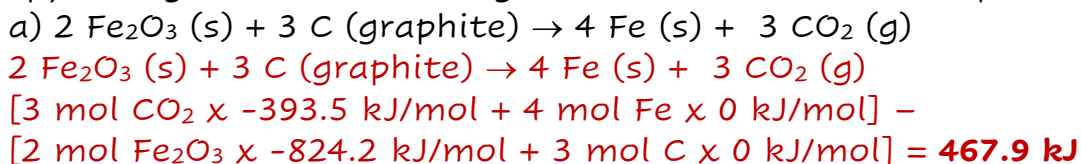
1. Write a balanced formation equation for each the following:



2. Write a balanced formation equation for ethanol,  $CH_3CH_2OH (l)$ , and include the value of  $\Delta H^\circ_f$ . (look in the appendix of your book for  $\Delta H^\circ_f$  values or use the link at the top of the page).



3. Use the  $\Delta H^\circ_f$  values in the appendix of your text to determine the enthalpy change for the following reactions: (balance the equations)



4. Use bond dissociation energies to calculate  $\Delta H^\circ_{rxn}$  for the following reaction.

