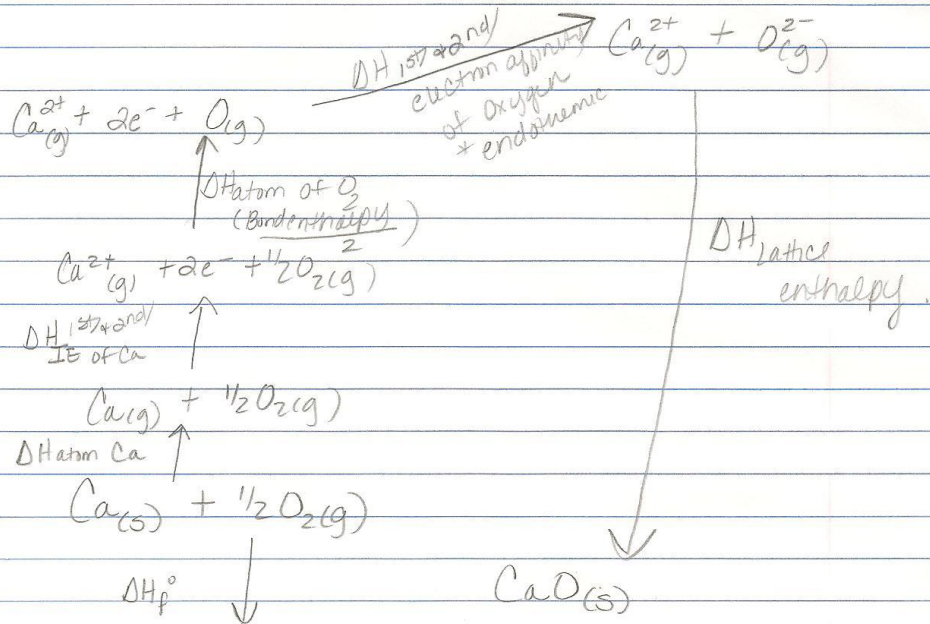


Study worksheet 15.2.1 and 15.2.2

1.



2. Clockwise = counterclockwise

$$\Delta H_f^\circ = \Delta H_{\text{atom Ca}} + \Delta H_{\text{1st+2nd IE of Ca}} + \frac{\Delta H_{\text{atom O}_2}}{2} + \Delta H_{\text{1st+2nd electron affinity of oxygen}} + \Delta H_{\text{LE}}$$

$$-635 \text{ kJ/mol} = 178 \text{ kJ/mol} + (590 \text{ kJ/mol} + 1150 \text{ kJ/mol}) + 249 \text{ kJ/mol} + (-141 \text{ kJ/mol} + 844 \text{ kJ/mol}) + \Delta H_{\text{LE}}$$

*\*already O2/2*

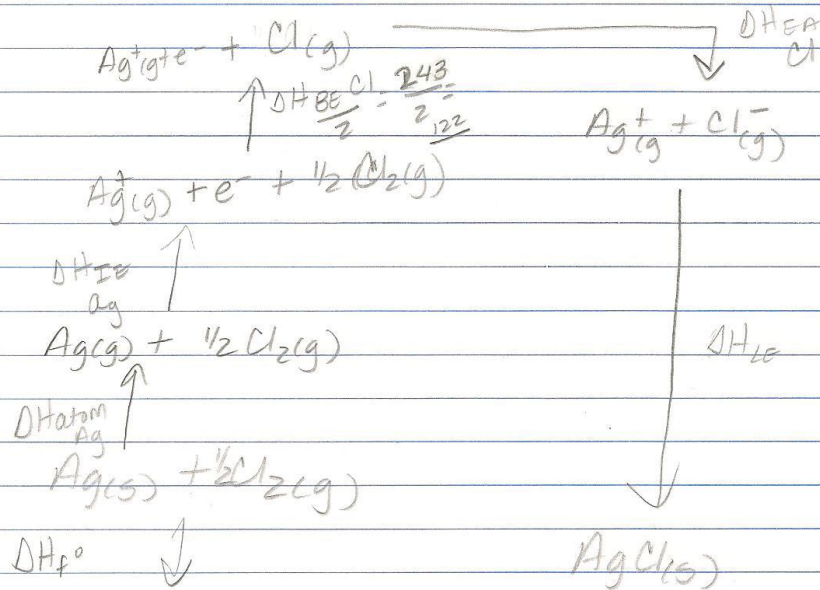
$$-635 \text{ kJ/mol} = 2870 \text{ kJ/mol} + \Delta H_{\text{LE}}$$

$$-635 - 2870 = \Delta H_{\text{LE}} \quad \Delta H_{\text{LE}} = -3505 \text{ kJ/mol}$$

OR +3505 kJ/mol  
\*185 adjustment

3.  $E^*$  depending upon if crystal lattice is forming (exothermic) or being broken into its component, gaseous ions (endothermic)

4.



$$\Delta H_f^\circ = \Delta H_{\text{atom Ag}} + \Delta H_{\text{IE Ag}} + \frac{\Delta H_{\text{BE Cl}}}{2} + \Delta H_{\text{EA Cl}} + \Delta H_{\text{LE}}$$

$$-\Delta H_{\text{LE}} = \Delta H_{\text{atom Ag}} + \Delta H_{\text{IE Ag}} + \frac{\Delta H_{\text{BE Cl}}}{2} + \Delta H_{\text{EA Cl}} - \Delta H_f^\circ$$

$$-\Delta H_{\text{LE}} = 284 + 731 + 122 + (-349) - (-127)$$

$$-\Delta H_{\text{LE}} = 915$$

$$\boxed{\Delta H_{\text{LE}} = -915 \text{ kJ/mol}}$$

or +915 kJ/mol  
by 18's  
deb.