**SI WORKSHEET 15**

**\*there are many ways to do these problems, this is my way of doing them but find and practice a way that works for you.**

1. C3H8 + 5O2 🡪 3CO2 + 4H2O ⍙H=(found by doing delta H products-delta H reactants)🡪(3 \*-393.5+ 4\*-241.8)-(1\*-103.8)= **-2043.9kJ/mol**
   1. What is the enthalpy if 100 g of H2O are formed?=5.55 moles. Now using the balanced equation we know that 4 moles H2O🡪-2043.9 kJ so we can do a ratio: 🡪 X= -2835.9 kJ/ mol
   2. How many grams of propane would be required to give off 1000kJ of energy?🡪21.69 grams of Propane (C3H8)
2. Target reaction: C4H10 + 13/2O2 🡪 4CO2 + 5H2O ⍙H= -2663.2 kJ
   1. 4C(s) + 5H2 🡪 C4H10 ⍙H= -119.8 kJ\*reverse
   2. 5H2 + 5/2O2 🡪 5H2O(g) ⍙H= -241.8 kJ\*multiply by 5
   3. 4C + 4O2 🡪 4CO2 ⍙H= -393.5 kJ\*multiply by 4
3. Sr + C + O2 🡪SrCO3(s) ⍙H=-1219.5 kJ
   1. Sr + O2 🡪SrO ⍙H= -592 kJ
   2. SrO + CO2 🡪 SrCO3 ⍙H= -234 kJ
   3. C + O2 🡪 CO2 ⍙H= -393.5 kJ
4. If C10H22(l) + 31/2O2 🡪 10CO2 + 11H2O(g) ⍙H= -3000 kJ
   1. 10C(s) + 11H2 🡪 C10H22 ⍙H= -3594
   2. 11H2 + 11/2O2 🡪 11H2O(g) ⍙H= -241.8 kJ
   3. 10C + 10O2 🡪 10CO2 ⍙H= -393.5 kJ
   4. What would be the enthalpy of reaction for .1 moles of decane? 🡪X=-300kJ/ mol
5. OF2 + H2O(g) 🡪2HF(g) + O2 ⍙H= -314.2 kJ
   1. The standard molar enthalpy of formation of OF2 is 18kJ/mol, calculate the standard molar enthalpy change for the reaction.

[(1\*0)+(2\*-269)]-[(1\*18)+(1\*-241.8) = -314.2 kJ