**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?$\frac{100 g H2O}{}x\frac{1 mol}{18 g}$=5.55 moles. Now using the balanced equation we know that 4 moles H2O🡪-2043.9 kJ so we can do a ratio: $\frac{4 mole}{5.55 mol}=\frac{-2043.9 kJ}{X}$🡪 X= -2835.9 kJ/ mol
	2. How many grams of propane would be required to give off 1000kJ of energy?$\frac{1000 kJ}{}x\frac{1 mol}{-2043.9 kJ}x\frac{44 g}{1 mol Propane}$🡪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 + $\frac{3 }{2}$O2 🡪SrCO3(s) ⍙H=-1219.5 kJ
	1. Sr + $\frac{1}{2}$ 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? $\frac{1 mole Decane}{.1 mol}=\frac{-3000 kJ}{X}$ 🡪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