Homework Problem #2										
Chem Eng 310										
	As Rec'd Basis	Dry Basis	Dry, Ash-Free	Moles/100 g	Produc	Heat of For	Stoich. Coe	Heat of Products		
Moist.	**28.09**					(kcal/mol)	moles prod/	(kcal/100 g)		
Ash	**6.31**	8.77					moles elem			
C		**68.43**	75.01	6.251	CO2	-94.05	1.00	-587.92		
H		**4.88**	5.35	5.349	H2O	-68.32	2.00	-182.73		
N		**1.03**	1.13	0.081	N2	0.00	2.00	0.00		
S		**0.63**	0.69	0.022	SO2	-70.96	1.00	-1.53		
O		16.26	**17.82**	1.114	O2	0.00	2.00	0.00		
Heating Value (Btu/lb)	**-8426.00**	-11717.42	**-12844.51**	7.80					Alternate daf=	-12844.51
Heating Value (cal/g)	-4680.64	-6509.03	**-7135.13**				Sum =	-772.18	kcal/100 g	
Heating value (kJ/g)	-19.58	-27.23	**-29.85**					-3230.80	kJ/100 g	
Heat of formation = Heat of products - Heat of Combustion										
Heat of products =	-772.18	kcal/100 g =	-7721.81	cal/g						
Heat of combustion =			-7135.13	cal/g						
Heat of formation of coal =			**-586.68 cal/g**			**-245.47 kJ/100g**		or kJ/mol if mol = 100 g		
			-19.15	kJ/mol with coal defined as CxHyOz... and x+y+z+...=1						
			-245.47	kJ/mol with coal defined as CaHbOc... with a=6.25,b=5.35, etc.						
		Moral to story: For solid fuels, do not normalize by moles!								
Basis:	100.00	g of as daf coal								
Amount of as rec'd coa	152.44	g of as rec'd coal								
Amount of moisture	42.82	g of liquid H2O								
Amount of ash	9.62	g of SiO2								
Amount of O2	30	g of O2								
Amount of H2O	60	g of H2O								