**Chem II - Hess’ Law Worksheet II Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Calculate H for the reaction from the following data.

**C2H4 (g) + H2 (g) C2H6 (g)**

C2H4 (g) + 3 O2 (g) 2 CO2 (g) + 2 H2O (l) H = -1411. kJ

C2H6 (g) + 7/2 O2 (g) 2 CO2 (g) + 3 H2O (l) H = -1560. kJ

H2 (g) + 1/2 O2 (g) H2O (l) H = -285.8 kJ

1. Calculate H for the reaction from the following data.

**4 NH3 (g) + 5 O2 (g) 4 NO (g) + 6 H2O (g)**

N2 (g) + O2 (g) 2 NO (g) H = -180.5 kJ

N2 (g) + 3 H2 (g) 2 NH3 (g) H = -91.8 kJ

2 H2 (g) + O2 (g) 2 H2O (g) H = -483.6 kJ

1. Find H for the reaction from the following data.

**2C(s, graphite) + 2H2(g) + O2(g) 🡪 HC2H3O2(l)**

HC2H3O2 (l) + 2 O2 (g) 2 CO2 (g) + 2 H2O (l) H = -875. kJ

C (s, graphite) + O2 (g) CO2 (g) H = -394.51 kJ

H2 (g) + 1/2 O2 (g) H2O (l) H = -285.8 kJ/mole

1. Calculate H for the reaction from the following data.

**CH4 (g) + NH3 (g) HCN (g) + 3 H2 (g)**

N2 (g) + 3 H2 (g) 2 NH3 (g) H = -91.8 kJ

C (s, graphite) + 2 H2 (g) CH4 (g) H = -74.9 kJ

H2 (g) + 2 C (s, graphite) + N2 (g) 2 HCN (g) H = +270.3 kJ

1. Calculatefor the reaction from the following data.

**2 Al (s) + 3 Cl2 (g) 2 AlCl3 (s)**

2 Al (s) + 6 HCl (aq) 2 AlCl3 (aq) + 3 H2 (g) H = -1049. kJ

HCl (g) HCl (aq) H = -74.8 kJ

H2 (g) + Cl2 (g) 2 HCl (g) H = -1845. kJ

AlCl3 (s) AlCl3 (aq) H = -323. kJ