

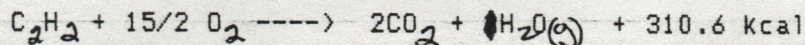
FORMULA, SUBSTITUTION, ANSWER IN SIGNIFICANT FIGURE, AND UNITS
FOR FULL CREDIT

1. Given: the potential energy of the reactants = 50.0 u
 the potential energy of the activation complex = 70.0 u
 the potential energy of the products = 28.0 u

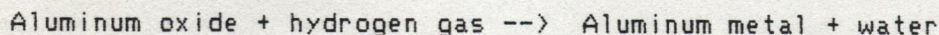
Show with a potential energy diagram the models of the a) reactants, b) the activation complex and c) products for the reaction between hydrogen and chlorine.

the reaction is a/an _____ reaction
 the ΔH of the reaction is _____ () <-- units

2. Calculate the heat of combustion of one (1) mole of C_2H_2 given the reaction is exothermic and the energy is 310.6 kcal for the reaction



3. Using figure 20.1 and figure 20.9 Calculate the entropy of the following reaction at 27 deg C.



4. Given:



What is the equilibrium constant at 1000 deg C if the following are the concentrations of $[N_2(g)] = 1.03M$, $[NH_3(g)] = 0.102M$, $[H_2(g)] = 1.62M$

5. Referring to the equation of problem 4. what effect would the following have on the reaction?

a) heat the system.

b) remove ammonia

c) remove $N_2(g)$

d) add $H_2(g)$

e) decrease pressure

6. When one (1) mole of HI is heated at 500 deg c in a sealed one (1) liter flask until equilibrium is reached, the HI decomposes to form 0.24 mole of each product, H_2 and I_2 . the reactant(s) and product(s) are in the gaseous phase Calculate the K_{eq}
7. The solubility product of Lead (II) Sulfate is 1.3×10^{-8} at 25 deg C. What is the solubility of Lead (II) Sulfate?
8. At 25 deg C, a saturated solution of $Pb(OH)_2$ contains 4.80×10^{-6} mole of the compound in one (1) liter of solution. What is the K_{sp} of $Pb(OH)_2$?