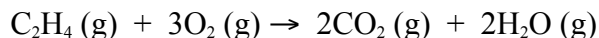


**AP MULTIPLE CHOICE QUESTIONS  
CH. 5, SET 1**

**1999**

- 61.** For the reaction of ethylene represented below,  $\Delta H$  is -1323 kJ. What is the value of  $\Delta H$  if the combustion produced liquid water,  $H_2O(l)$  rather than water vapor,  $H_2O(g)$ ? ( $\Delta H$  for the phase change  $H_2O(g) \rightarrow H_2O(l)$  is -44 kJ/mol)



- (A) -1235 kJ                      (D) -1367 kJ  
(B) -1279 kJ                      (E) -1411 kJ  
(C) -1323 kJ

- 75.** The oxidation state of nitrogen in nitric acid ( $HNO_3$ ) is
- (A) +1                      (D) +4  
(B) +2                      (E) +5  
(C) +3

- 69.** What is the final concentration of barium ions,  $[Ba^{2+}]$ , in solution when 100. mL of 0.10 M  $BaCl_2(aq)$  is mixed with 100. mL of 0.050 M  $H_2SO_4$ ?

- (A) 0.00 M                      (D) 0.075 M  
(B) 0.012 M                      (E) 0.10 M  
(C) 0.025 M

**1984**

- 47.**  $CH_4(g) + 2 O_2(g) \rightarrow CO_2(g) + 2 H_2O(l)$        $H = -889.1 \text{ kJ}$

$$\Delta H_f H_2O(l) = -285.8 \text{ kJ/mol}$$

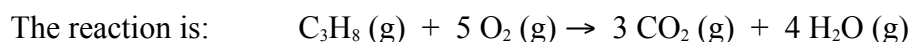
$$\Delta H_f CO_2(g) = -393.3 \text{ kJ/mol}$$

What is the standard heat of formation of methane,  $\Delta H_f CH_4(g)$ , as calculated from the data above?

- (A) -210.0 kJ/mol                      (D) 75.8 kJ/mol  
(B) -107.5 kJ/mol                      (E) 210.0 kJ/mol  
(C) -75.8 kJ/mol

**AP Chem, Test 1**

- 64.** The complete combustion of 1 mole of propane ( $C_3H_8$ ) results in the liberation of 488.7 kcal. What is the heat of formation of propane?



$\Delta H_f$  (kcal/mol):  $CO_2$  is -94.1 and  $H_2O$  is -57.8

- (A) +6.9 kcal/mol                      (D) -63.6 kcal/mol  
(B) -19 kcal/mol                      (E) -143.2 kcal/mol  
(C) -24.8 kcal/mol