

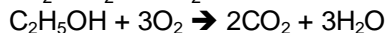
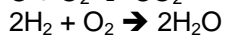
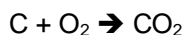
Revised August 2007

AP WORKED ANSWERS

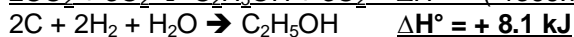
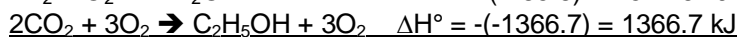
1988, 2

Points 2, 3, 1, 3

(a)



(b)



$$(c) \Delta S = S^\circ_{(\text{products})} - S^\circ_{(\text{reactants})}$$

$$= (160.7) - [(2)(5.740) + ((2)(130.6)) + (69.91)] = -181.9 \text{ Jmol}^{-1}\text{K}^{-1}$$

(d)

$$\Delta G^\circ = \Delta H^\circ - T\Delta S^\circ$$

$$= (8100) - [(298)(-181.9)] = 62300 \text{ J}$$

$$\Delta G = -RT \ln K$$

$$\ln K = -\frac{\Delta G}{RT} = -\frac{62300}{(8.31)(298)} = -25.2$$

$$K = 1.14 \times 10^{-11}$$