ANSWER TO "TRY YOURSELF" PROBLEM FROM STUDY SECTION 7.3

Try Yourself 7.3 a

An aqueous solution containing ethanol and acetic acid, both at an initial concentration of 0.810 mol.L^{-1}, is heated to 100^{0}C. Reaction occurs between the alcohol and the carboxylic acid to form the ester, ethyl acetate:

$$C_2H_5OH(aq) + CH_3COOH(aq) \leftrightarrows CH_3COOC_2H_5(aq) + H_2O(l)$$

At equilibrium, the acetic acid concentration is 0.748 mol.L^{-1}. Calculate K for the reaction at 100^{0}C.