A First Course on Kinetics and Reaction Engineering Practice Problem 8.2

Problem Purpose

This problem will help you determine whether you have mastered the learning objectives for this unit.

Problem Statement

Suppose that iodopropane reacts to produce iodine according to the apparent reaction (1), but that the reaction is not elementary. By separately assuming each of the three mechanistic steps proposed in equations (2) through (4) to be rate-determining, generate three possible rate expressions for reaction (1).

$2 \text{ C}_3\text{H}_5\text{I} \rightleftarrows \text{C}_6\text{H}_{10} + \text{I}_2$	(1)
$C_3H_5I \rightleftarrows C_3H_5 + I$	(2)
$C_3H_5I + I \rightleftharpoons C_3H_5 + I_2$	(3)
$2 C_3 H_5 \rightleftharpoons C_6 H_{10}$	(4)