Problem 3.1

Problem Purpose

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

Problem Statement

Formic acid can decompose two ways as given in equations (1a) and (1b). If pure formic acid decomposes at 200 ºC and 1 atm, what is the final equilibrium composition in mole percentages? In solving this problem, assume that all species behave as ideal gases. You will need to consult an appropriate reference source to find the necessary thermodynamic data.

$$HCOOH \rightarrow CO + H_2O \qquad\qquad\qquad (1a)$$
$$HCOOH \rightarrow CO_2 + H_2 \qquad\qquad\qquad (1b)$$