AFCoKaRE Practice Problem 25.1 Solution

Purpose: This problem will allow you to practice the qualitative analysis of a PFR.

Problem Statement: Suppose reaction (1) occurs adiabatically in a steady state PFR, with the temperature and concentration profiles shown in Figures 1 and 2. How would the temperature and concentration profiles change if the reaction was run adiabatically using the same feed temperature and composition in the same steady state reactor, but with the volumetric flow rate doubled?
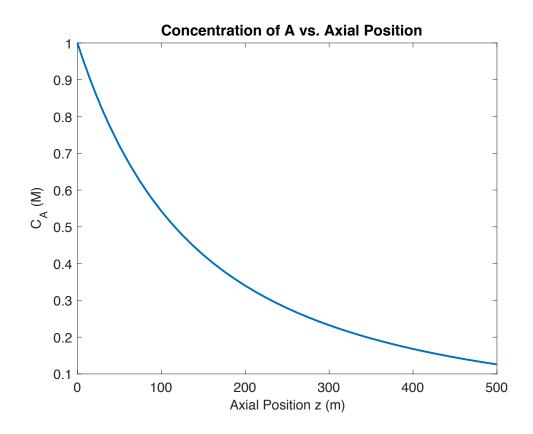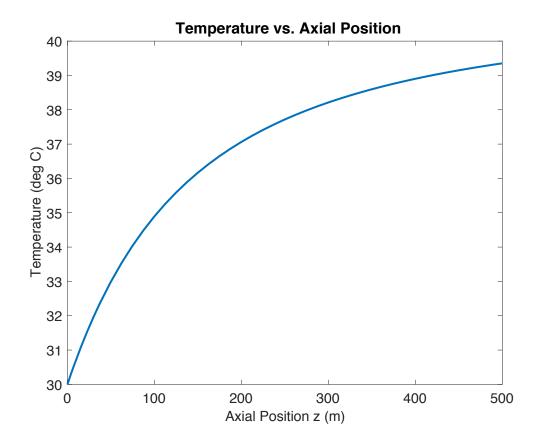
$$A + B \rightarrow Y + Z \tag{1}$$

Figure 1. PFR concentration profile.

Figure 2. PFR temperature profile.