ABE 370 Quiz 2

Name:

Problem 1 (2 points).

For an enzymatic reaction (see below, if needed), what are the dimensions/units of the rate constants Vm and Km?

r = -Vm*C/[Km + C]

Vm [=] mol/volume-time
Km [=] mol/volume

Problem 2 (6 points) In what type of ideal reactor is:

a. The concentration not a function of position or time?
   steady state mixed flow

b. The concentration is a function of time but not position?
   batch

c. The concentration is a function of position but not time?
   steady state plug flow

Problem 3 (2 points) What is the space-time parameter with respect to reactor design? You may include any equations or diagrams, if needed

Time required to process one reactor volume of feed at specified conditions. E.g.

MFR

$$\tau = [Co - C]/(-r) = CoX/(-r)$$

PFR

$$\tau = \int dC/r = Co \int dX/(-r)$$