part a.











part b



T - total initial moles of mixture



Calculating the equilibrium V-L compositions at 180 mm Hg using model

the equilibrium vapor phase is 47.2% water and 53.8% acetic acid

the equilibrium liquid phase is 14.4% water and 85.6% acetic acid





setting up the component mass balances









So there are 9.48 moles of vapor of composition 47.5% water

and 10.4 moles of liquid of composition 14.4% water.

