P/bar	x_1	y_1	P/bar	x_1	y_1
0.280	0.000	0.000	0.217	0.614	0.263
0.277	0.056	0.044	0.202	0.677	0.297
0.274	0.106	0.073	0.181	0.771	0.367
0.270	0.167	0.102	0.157	0.841	0.446
0.264	0.232	0.130	0.141	0.886	0.512
0.250	0.378	0.175	0.130	0.907	0.573
0.240	0.459	0.204	0.119	0.930	0.63
0.228	0.553	0.234	0.081	1.000	1.000

Problem 8.4: Use the data below for the system ethyl propyl ether (1)-chloroform (2) to answer the following questions:
a) What is the boiling point of chloroform at 0.5 bar?
b) Is this a maximum boiling or minimum boiling azeotrope?
c) What is the composition at the azeotropic point?
d) A mixture of the two components contains 80% by mol ethyl propyl ether. What is the phase of this mixture at 48.3 °C, 0.5 bar? If a two-phase system, report the composition of the two phases and their relative amounts.

a solution of these two components

e) One mol of ~~a solution,~~ whose bubble point at 0.5 bar is 48.3 °C, is mixed with chloroform until the final mixture contains 50% chloroform (by mol). How much chloroform is needed?

Ethyl Propyl Ether (1) - Chloroform (2) at 0.5 bar

T (°C)	x_1	y_1	T (°C)	x_1	y_1
42.9	0.000	0.000	49.0	0.470	0.455
43.0	0.020	0.010	49.1	0.520	0.520
43.9	0.065	0.029	48.9	0.567	0.592
45.4	0.156	0.089	48.3	0.652	0.720
46.4	0.215	0.142	47.6	0.745	0.815
47.6	0.296	0.223	46.7	0.822	0.872
48.3	0.362	0.302	45.7	0.907	0.937
48.7	0.410	0.375	44.6	1.000	1.000

Problem 8.5: With reference to Figure 8-7, consider the following experiment: We begin with 1 mol of carbon tetrachloride at 35 °C, 0.35 bar and add methanol dropwise at constant temperature and pressure until the the mixture contains 99% by mol methanol. Describe all phase changes observed along this path and report the amount of methanol (in moles) that has been added up to the point that a phase change is observed.

Problem 8.6: A mixture that contains 40% by mole n-heptane in n-decane is to be separated in a series of flush separators until a stream is obtained that contains at least 95% n-heptane. Determine the number of separators needed, their temperature,