

**CHE 305 – Separation Processes**  
**Spring 2010 – In Class Exercise on Efficiency**

The attached XY phase diagram includes equilibrium data and operating lines for a distillation column. The theoretical stages have been stepped off using the McCabe-Thiele method. Determine the number of stages required if the overall efficiency is 75%. How many stages are required if the Murphree Efficiency is 75%?

$$\eta_M = \frac{y_N - y_{N+1}}{y_N^* - y_{N+1}}$$

XY Phase Diagram

