Problem Set 3  
S343

This problem set will help prepare you for quiz 3.

Problems from “Techniques in Organic Chemistry”
   Technique 13: Questions 3, 4
   Technique 19: Questions 1, 3, 4, 6

Questions based on dihydroxylation lab:

1. What is the stereochemical relationship between cis-cyclohexane-1,2-diol and trans-cyclohexane-1,2-diol?
2. Which of these mixtures could be separated by TLC?
   a. (1R,2R) cyclohexane-1,2-diol and (1S,2R) cyclohexane-1,2-diol
   b. (1R,2R) cyclohexane-1,2-diol and (1S,2S) cyclohexane-1,2-diol
3. How can TLC be used as a technique to eliminate possible mechanisms of a reaction?

Additional questions:

1. What are the advantages and disadvantages of fractional distillation versus simple distillation? When would you use each one?
2. Draw the apparatus used in simple distillation. Label all pieces and give their purpose.