

Name: \_\_\_\_\_

In the reaction of the tosylate shown and sodium cyanide, both S<sub>N</sub>2 and S<sub>N</sub>1 mechanisms are possible.

For each reaction: a) predict the major product(s) expected. (stereochemistry?)

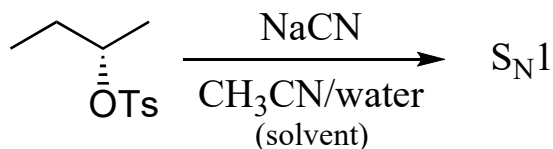
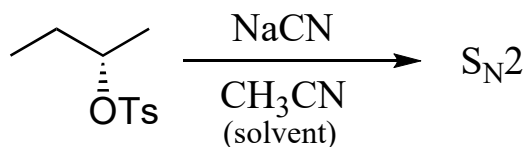
b) provide a complete mechanism. (watch details: lone prs, formal charges, arrows)

c) provide an E vs. POR diagram. (give structures for the transition states)

Complete  
Lewis  
structure  
for NaCN

Bond-line  
structure  
for TsO<sup>⊖</sup>  
(tosylate LG)

(see Klein 7.10)



**BONUS** Experimentally, how could you determine which mechanism has predominated? Explain.