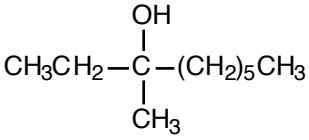
ORGANIC CHEMISTRY **CH 385, Winter 2012**

WORKSHOP, Chapter 14

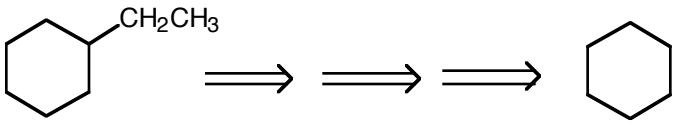
Organometallic Compounds / Alcohol Syntheses

1. Compounds **A** and **B** both have a molecular formula of C_7H_7Br. When either is reacted with Mg/Et_2O followed by treatment with H_2O, toluene ($C_6H_5CH_3$) is obtained. When **A** is added to $AgNO_3$/EtOH, an immediate precipitate occurs. However, when **B** is added to $AgNO_3$/EtOH, even heating for extended periods of time yields no precipitate. Give possible structures for **A** and **B**, and explain the reasoning behind your assignments.

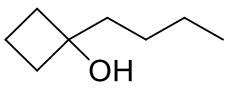
2. a. Disconnect the following alcohol to all of the possible combinations of Grignard reagents and carbonyl reactants.

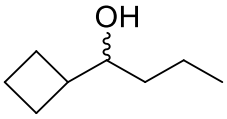


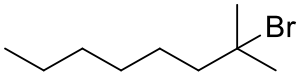
b. Construct a retrosynthetic tree for the synthesis of ethylcyclohexane from cyclohexane. Include as many routes (branches) as possible. Evaluate the efficiency of each step in each route. Come to a group consensus about the most efficient route.



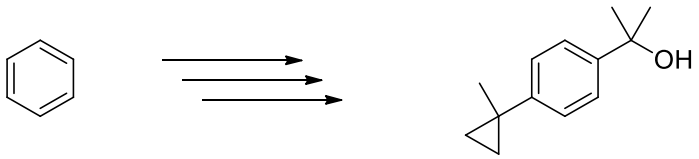
3. Write synthetic sequences for the following compounds, beginning only with alcohols having four carbons or fewer.







4. Break in to groups of two-three and design a synthesis of 2-(4-(1-methylcyclopropyl)phenyl)propan-2-ol. There are lots of ways to do this. Think what might be the most efficient.



2-(4-(1-methylcyclopropyl)phenyl)propan-2-ol