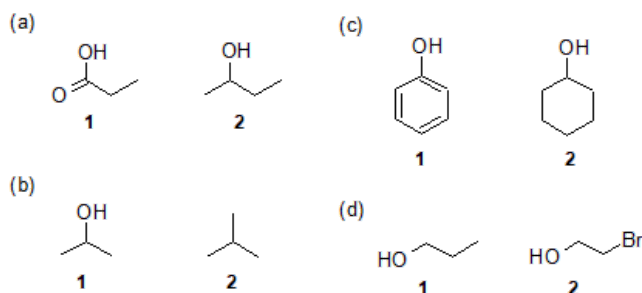


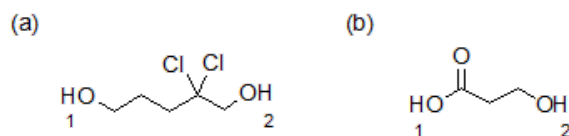
## 13.12: 13.12 ADDITIONAL EXERCISES

### PHYSICAL PROPERTIES OF ALCOHOLS

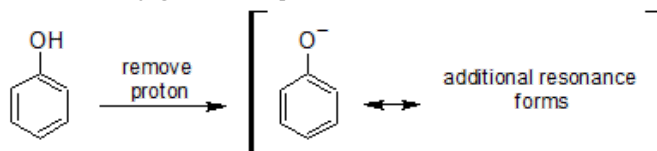
13-1 Identify which compound is more acidic. Explain your reasoning for each choice.



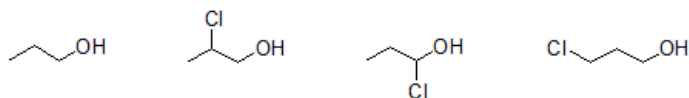
13-2 Identify which is the most acidic proton in the following compounds. Explain your reasoning for each choice.



13-3 Draw all possible resonance forms of the conjugate base of phenol.



13-4 List the following compounds in order from most to least acidic.



13-5 Predict which compound of each pair is more soluble in water and explain your reasoning.

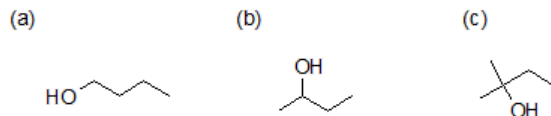
1. butan-1-ol or pentan-1-ol
2. phenol or cyclohexanol
3. octan-1,3-diol or octan-1-ol
4. 1-chlorohexane or hexan-1-ol

13-6 Predict which compound has the higher boiling point and explain your reasoning.

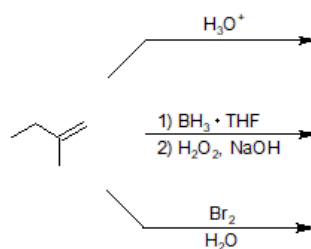
1. water or ethanol
2. butan-1-ol or octan-1-ol
3. hexan-2-ol or hexan-2-one

### SYNTHESIS OF ALCOHOLS

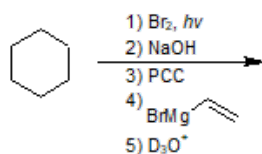
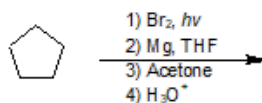
13-7 Show a possible way to synthesize the following alcohols.



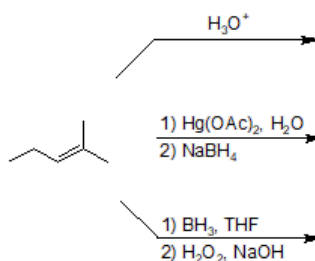
13-8 Give the product of each reaction.



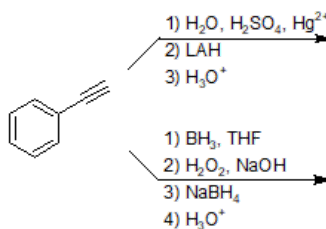
13-9 Give the product of each reaction.



13-10 Give the product of each reaction.

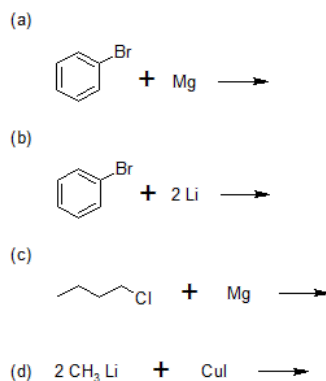


13-11 Give the product of each reaction.

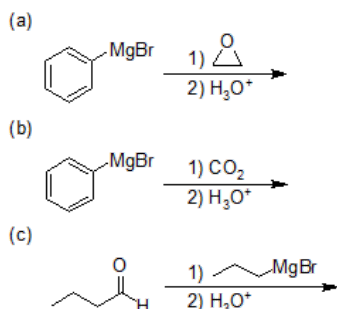


## ORGANOMETALLIC REAGENTS FOR ALCOHOL SYNTHESIS

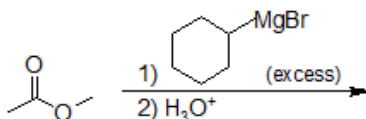
13-12 Draw the products of the following reactions.



13-13 Draw the products of the following reactions.



13-14 What is the final product of the following reaction.



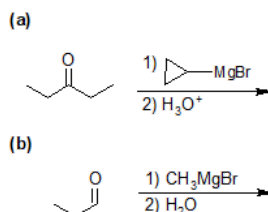
13-15 Draw the mechanism for question 13-14.

13-16 Identify the product of the following reaction and explain why that is the correct answer.

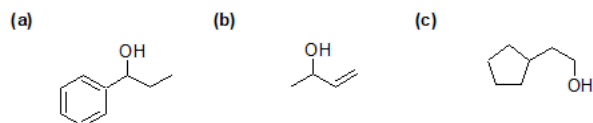


## ADDITION OF ORGANOMETALLIC REAGENTS TO CARBONYL COMPOUNDS

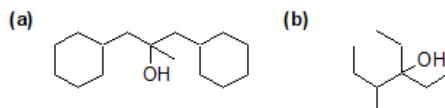
13-17 Give the product(s) of the following reactions. Include stereochemistry when necessary.



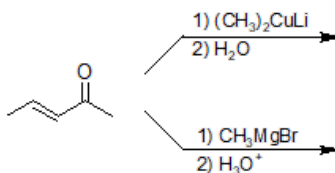
13-18 Show a possible carbonyl compound that was used to make the following alcohols through a Grignard reaction.



13-19 For the following compounds, identify the Grignard reagent used and the initial methyl ester compound.

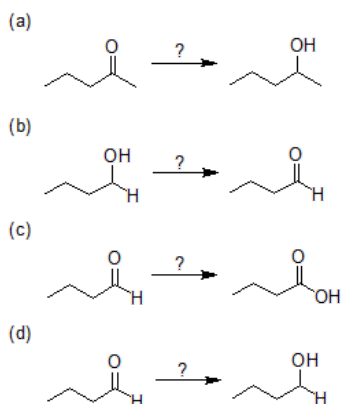


13-20 Give the products of the following reactions.

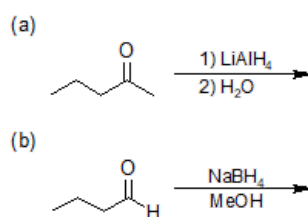


## REDUCTION OF THE CARBONYL GROUP

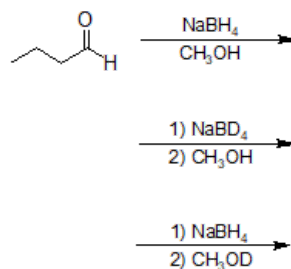
13-21 Identify whether the initial compound is undergoing oxidation or reduction.



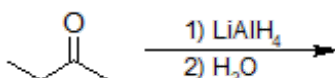
13-22 Give the product of each reaction.



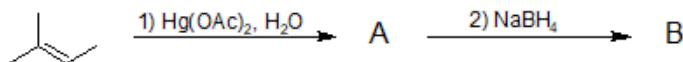
13-23 Give the product of each reaction (same starting molecule), making sure to specify where each proton ends up in the final product.



13-24 Give the mechanism for the following hydride reduction reaction.



13-25 Draw the structures for A and B.

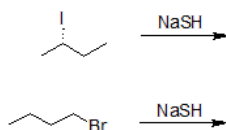


## THIOLS (MERCAPTANS)

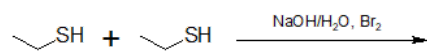
13-26 Name the following compounds following IUPAC nomenclature.



13-27 Identify the product of the following reaction. Include stereochemistry if appropriate.



13-28 Identify the product of the following reaction.



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13.12: 13.12 Additional Exercises is shared under a [not declared](#) license and was authored, remixed, and/or curated by LibreTexts.