Chem 30A- Week 9

Warm-up Exercise

Which pair reacts faster in a S_N2 reaction with a hydroxide ion?

a. CH_3Br or CH_3I b. CH_3CH_2I in EtOH or DMSO c. H2CCHCH$_2$Br or H_2CCHBr

Which reagent in the pair is more nucleophilic?

d. BF_3 or F^- e. $(CH_3)_3P$ or $(CH_3)_3N$ f. H_2O or CH_3COO^-

Order each set of compounds with respect to S_N1 reactivity

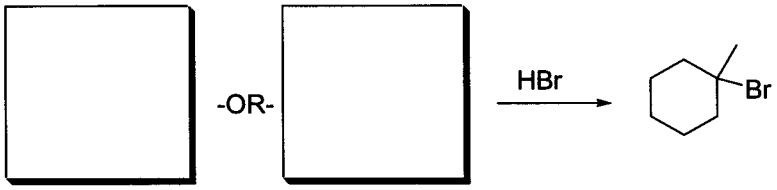
g. $(CH_3)_3C$-Cl Ph-$C(CH_3)_2Cl$ $CH_3CH_2C(NH_2)HCH_3$

h. $(CH_3)_3C$-F $(CH_3)_3C$-Br $(CH_3)_3C$-OH

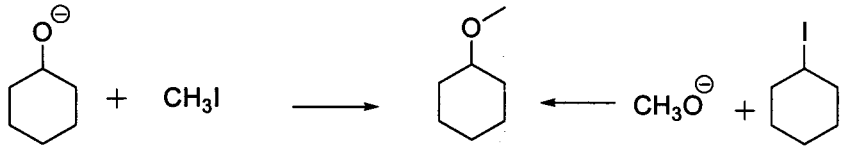
i. Ph-CH_2Br $PhCH(CH_3)Br$ $(Ph)_3CBr$

Substitution

1. Give two starting materials for the following reaction

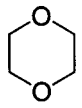


2. Which way would you use to make cyclohexyl methyl ether using a S_N2 reaction?



3. What is the product of the intramolecular S_N2 reaction of 4-bromo-butanol with sodium methoxide (base)?

b. Given the above reaction: how would you make 1,4-dioxane from a di-halide starting material?

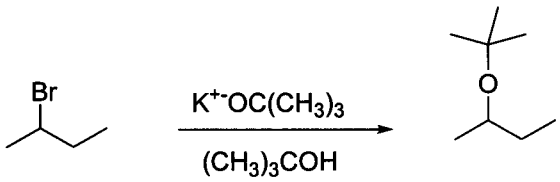


1,4-dioxane

Substitution vs. Elimination

4. The synthetic sequences shown here are all unlikely to occur as written. What is wrong with each?

a.



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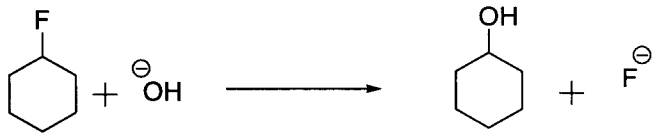
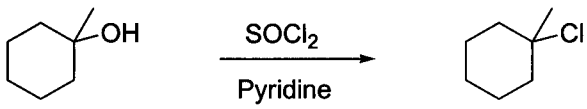


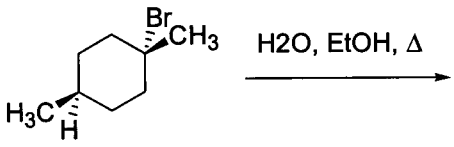
c.



Chapters 8

Substitution vs. Elimination

1.



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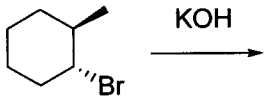

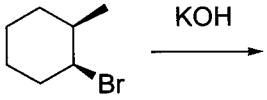

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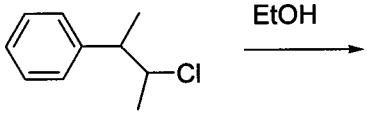

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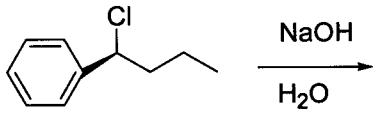

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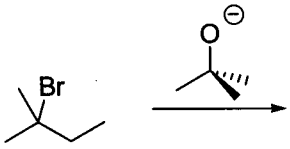
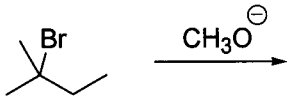
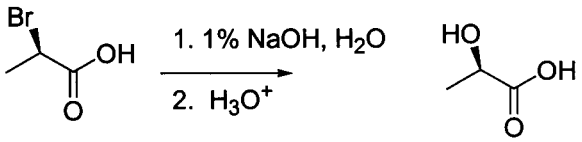




6. Propose a mechanism:



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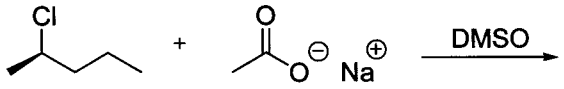

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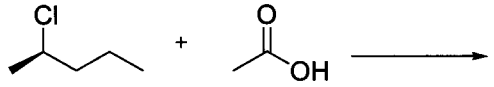

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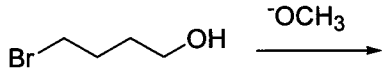

Hint: 2 possible products

10. Explain why t-butanol will not react with potassium chloride, but will react with concentrated HCl to form 2-chloro-2-methylpropane.

But