

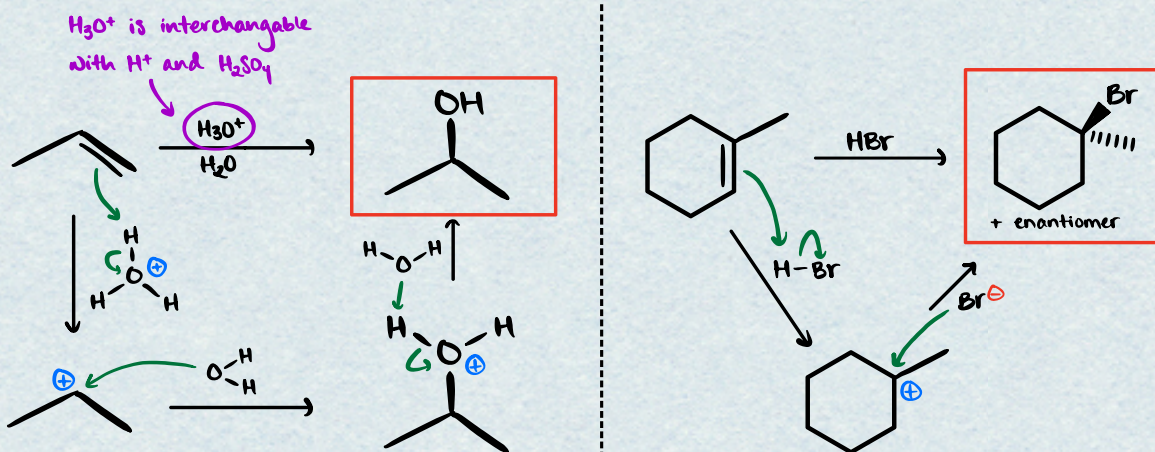
# CHEAT SHEET BUNDLE

For Organic Chemistry I

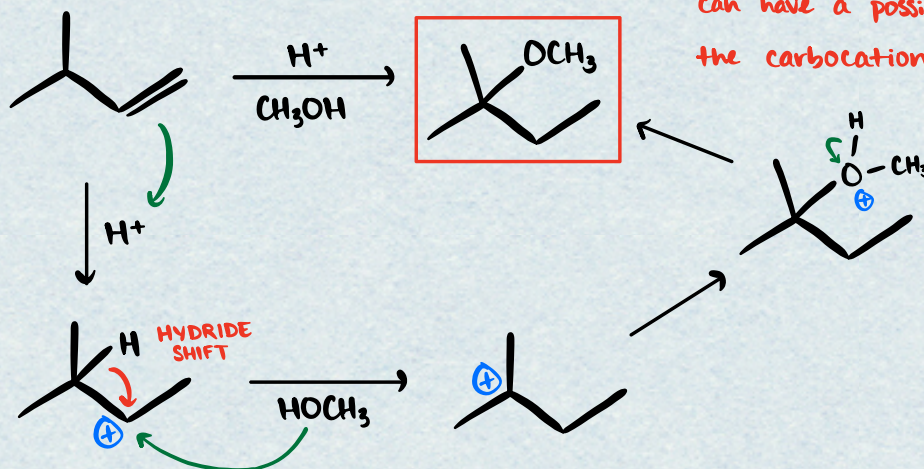
(First 5 Pages)

By Organic Chemistry Simplified

## Addition Reactions

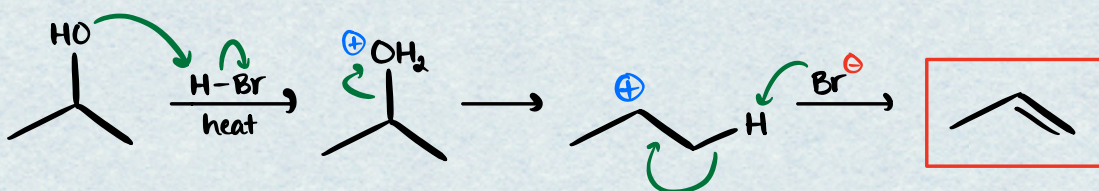


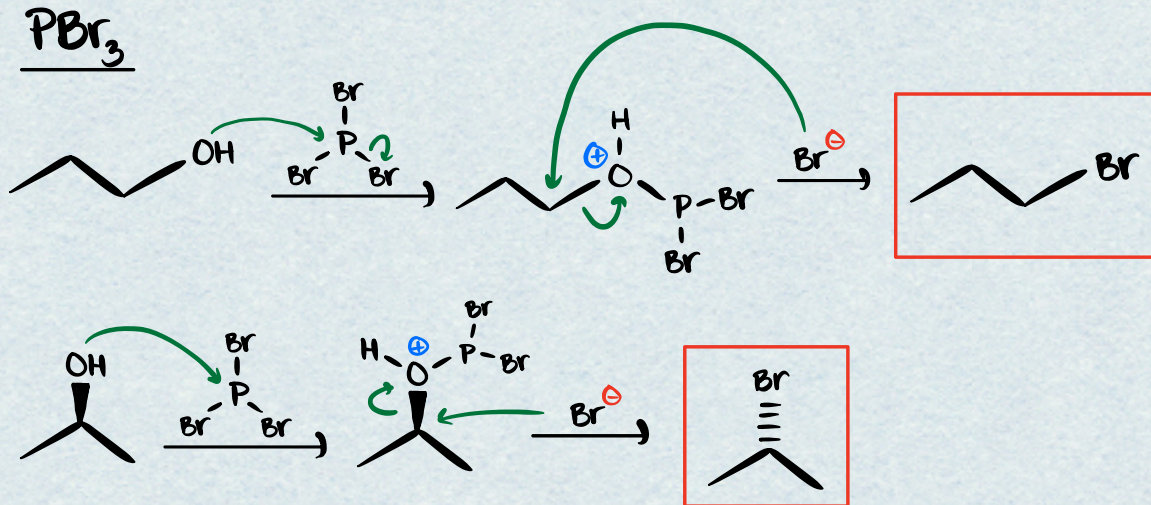
## SHIFTS POSSIBLE



## Acid-Catalyzed Dehydration

## SHIFTS POSSIBLE



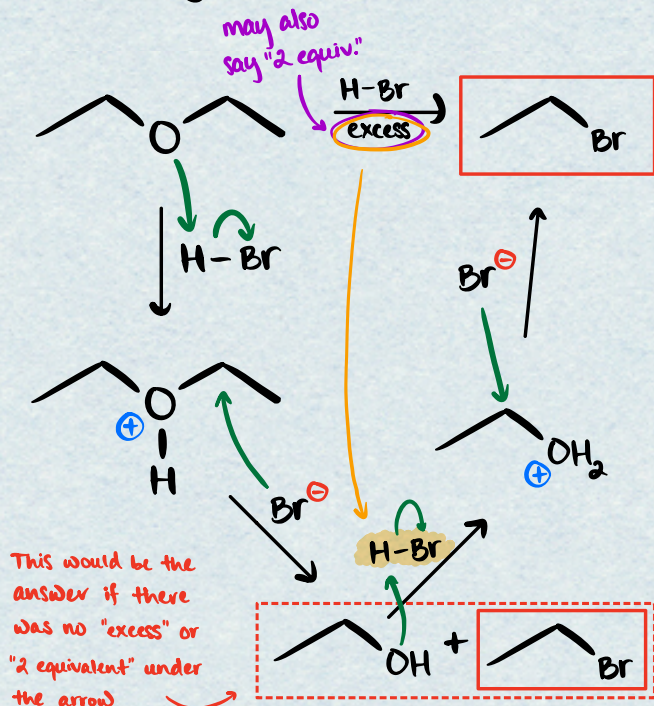


**NO SHIFTS**

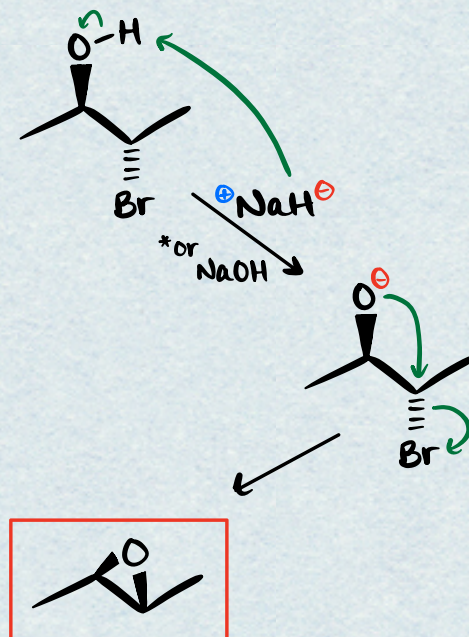
**\*STEREOCHEM FLIPS** \*HBr works like PBr<sub>3</sub> except shifts can occur!

\*In synthesis problems, use PBr<sub>3</sub> for 1° and 2° alcohols, but use HBr for 3° alcohols

### Cleavage of Ethers

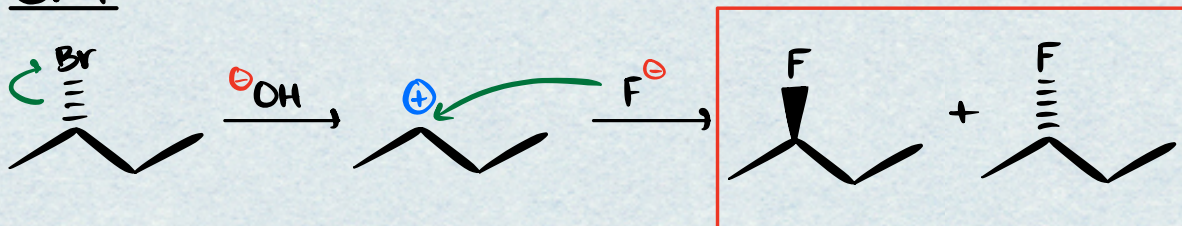


### How to Prepare Epoxides



# S<sub>N</sub>1, S<sub>N</sub>2, E1, and E2

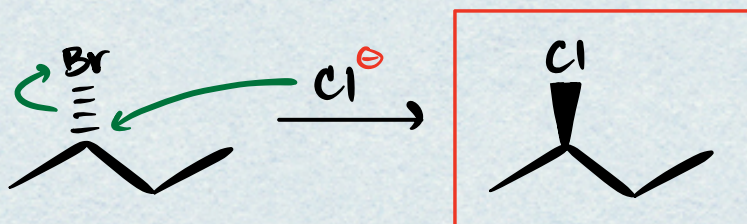
## S<sub>N</sub>1



### Key Principles

- 2 steps
    1. Leaving Group leaves
    2. Nucleophile gets added on
  - Likely to occur when leaving group is 3° (tertiary)
  - Unlikely to occur when leaving group is 1° (primary)
  - **SHIFTS POSSIBLE**
  - **2 ANSWERS - ONE WITH ADDED NUCLEOPHILE WEDGED, ONE DASHED**
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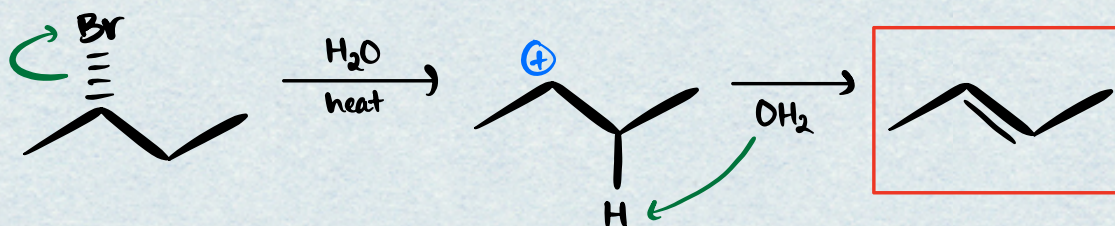
## S<sub>N</sub>2



### Key Principles

- 1 Step: Nucleophile gets added on and leaving group leaves
- Likely to occur when leaving group is 1°
- Unlikely to occur when leaving group is 3°
- **SHIFTS NOT POSSIBLE**
- **1 ANSWER WITH OPPOSITE STEREOCHEM**

## E1

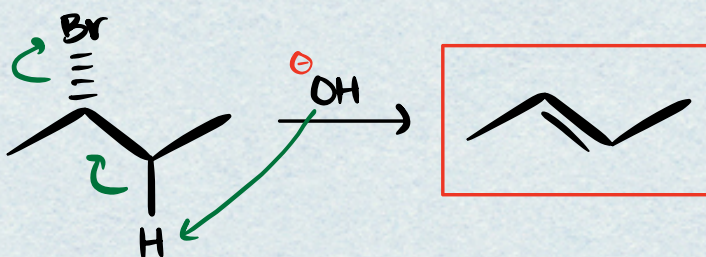


### Key Principles

- 2 steps
  1. Leaving Group leaves
  2. Base takes H
- Likely to occur when leaving group is 3°
- Unlikely to occur when leaving group is 1°
- **SHIFTS POSSIBLE**
- **1 ANSWER WITH A DOUBLE BOND**

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## E2



### Key Principles

- 1 step: Base takes H and leaving group leaves
- Likely to occur when leaving group is 1°
- Unlikely to occur when leaving group is 3°
- **SHIFTS NOT POSSIBLE**
- **1 ANSWER WITH A DOUBLE BOND**