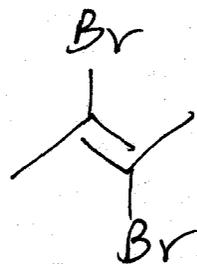
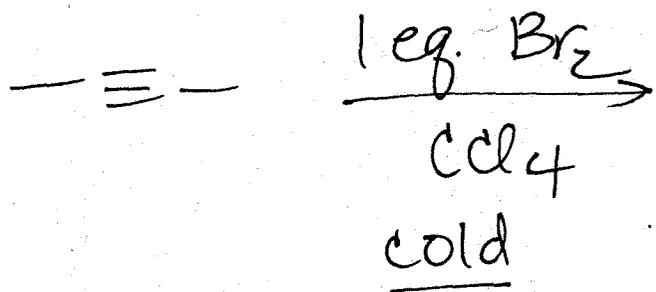
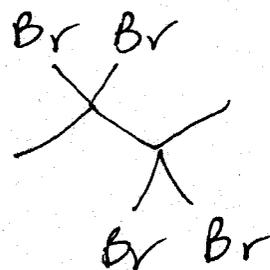
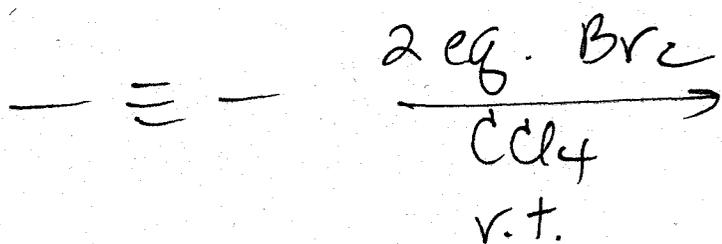


# Addition Rxns to Alkynes

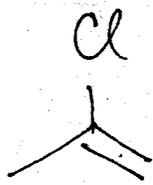
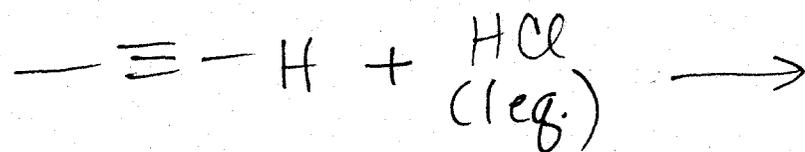
## 1. $\text{Br}_2 / \text{CCl}_4$ (or $\text{Cl}_2$ )

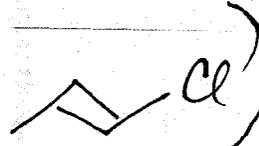


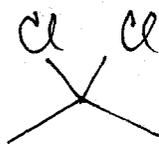
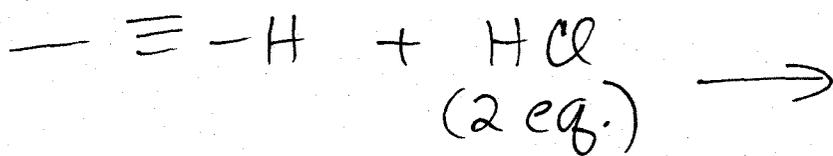
\* can stop here b/c e<sup>-</sup> withdrawing halogens deactivate the alkene.



## 2. $\text{HX}$ (Markovnikov)

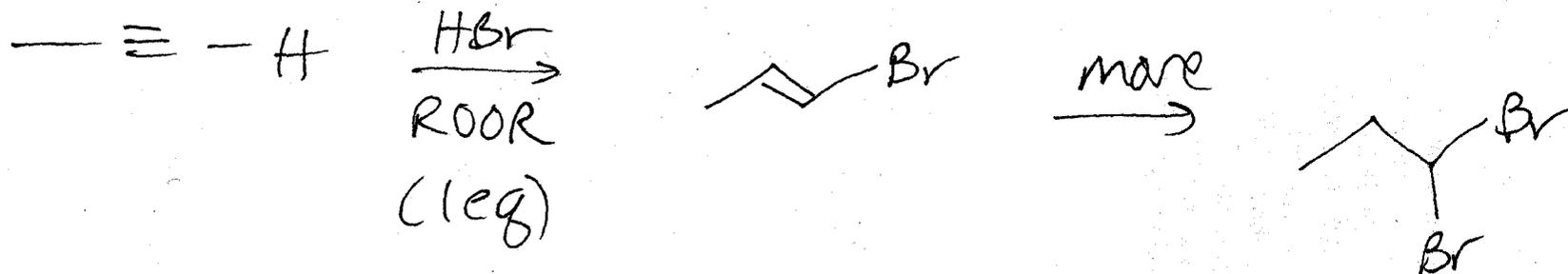


(not )

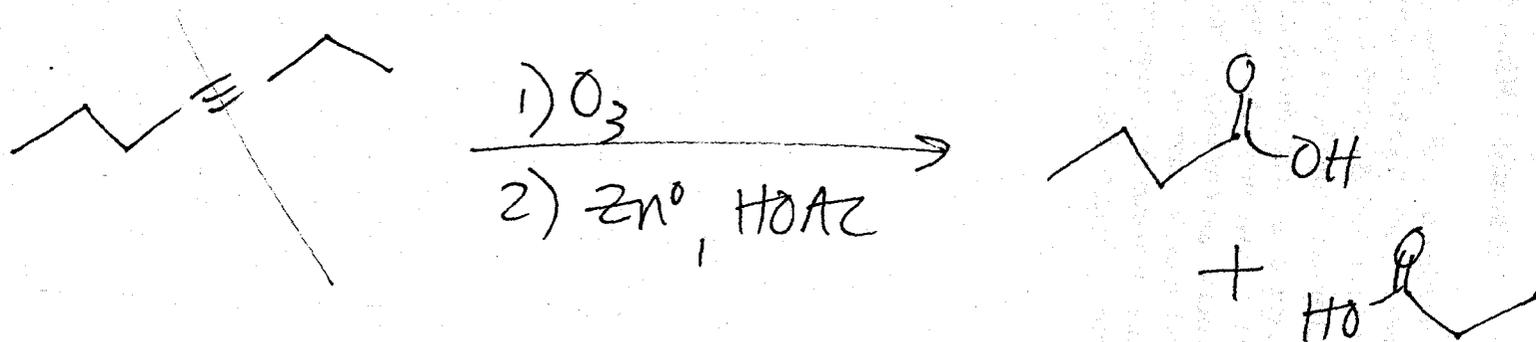


gem-dihalide

Use HBr/ROOR - anti Markovnikov add'n



3. Oxidative cleavage -  $\text{O}_3$  or  $\text{KMnO}_4$   
both give carboxylic acids.



# Synthesis

