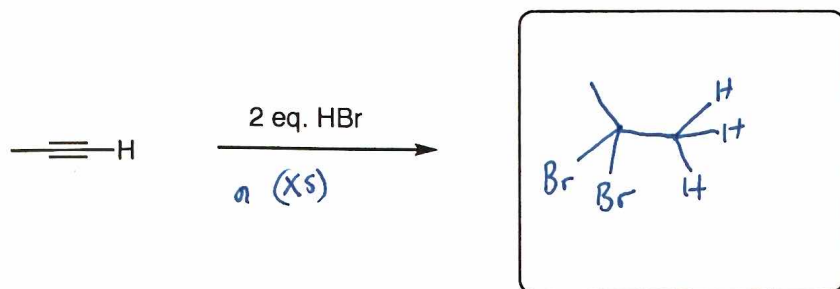


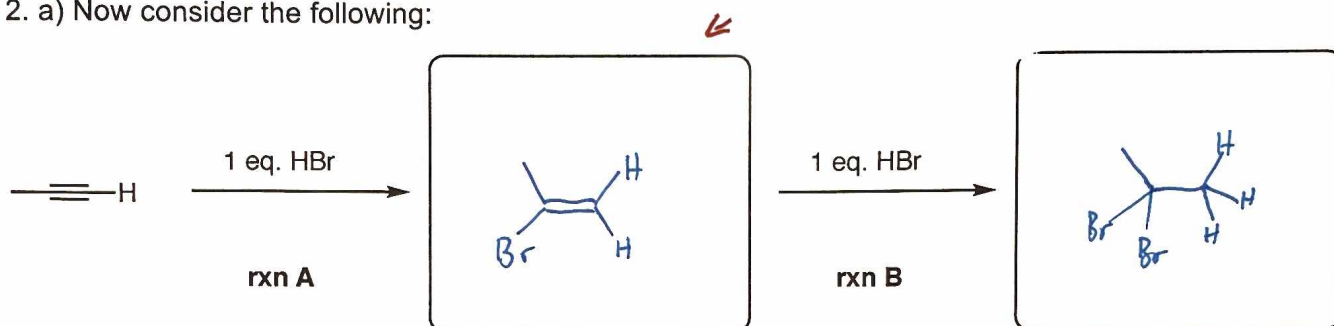
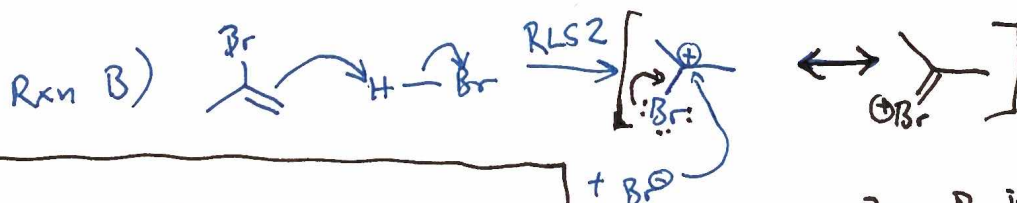
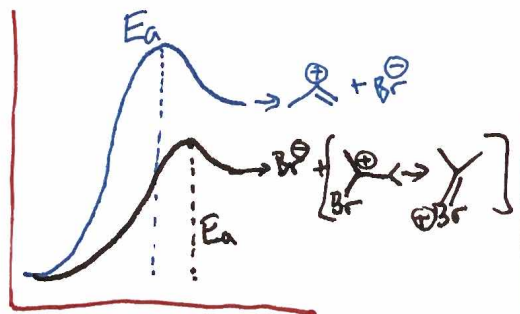
① Addition of HX to Alkynes. $\text{HX} = \text{HI}, \text{HBr}, \text{and HCl}$.

Product results in Markovnikov orientation.

1. Predict the product of the net reaction below:



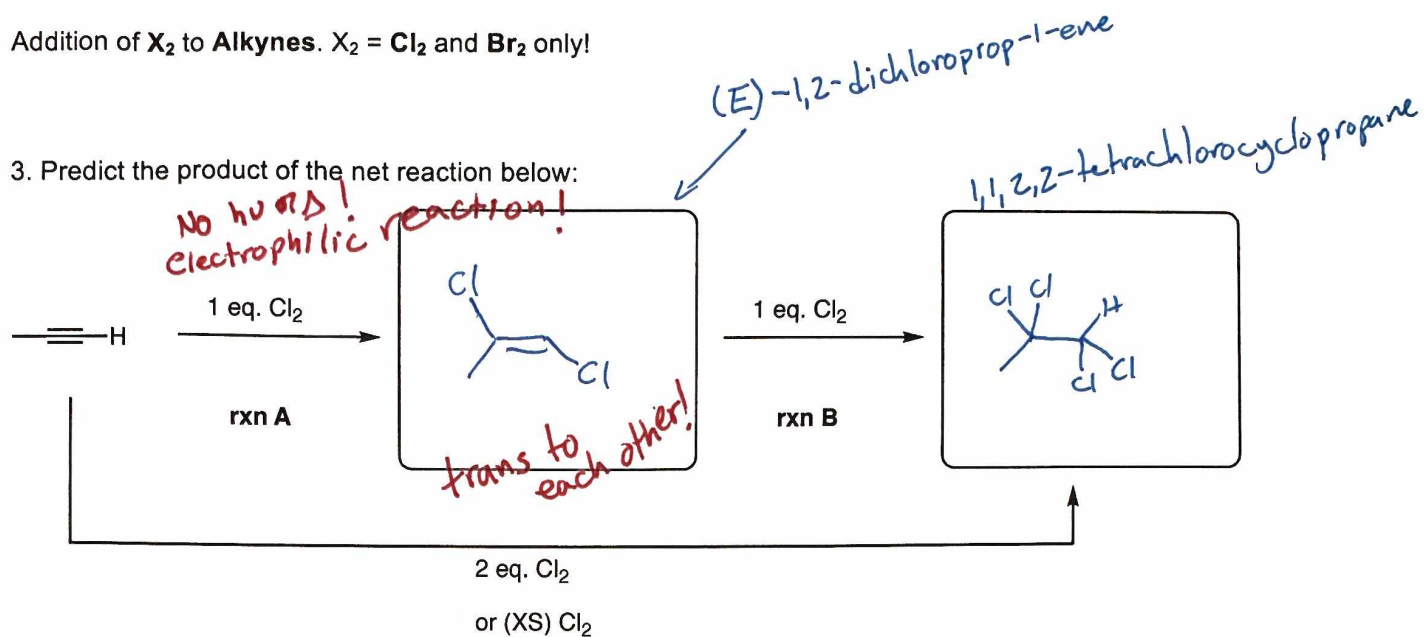
2. a) Now consider the following:

b) Would you expect the addition of the **second** equivalent of HBr to be faster or slower than the first one? Briefly explain. Note: Draw the mechanism of both reactions (A and B) to aid your answer.Remember:Rxn B is faster!

The Carbocation produced is very stable (through resonance), as shown above. This lowers the energy of the carbocation (more stable), lowering the activation energy, which leads to a faster reaction, in R1S2

② Addition of X_2 to **Alkynes**. $X_2 = Cl_2$ and Br_2 only!

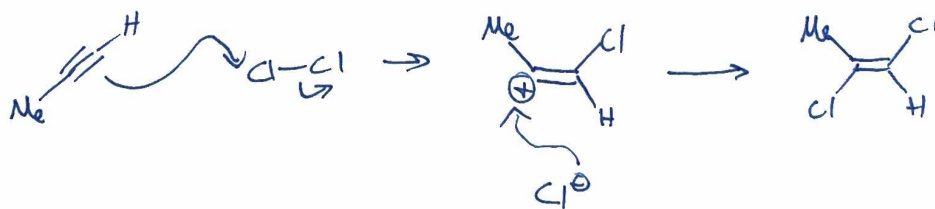
3. Predict the product of the net reaction below:



On your own (homework), draw the mechanism for both reactions and see if you generate carbocations stabilized by halogens.

Mechanisms.

Rxn A



Rxn B

