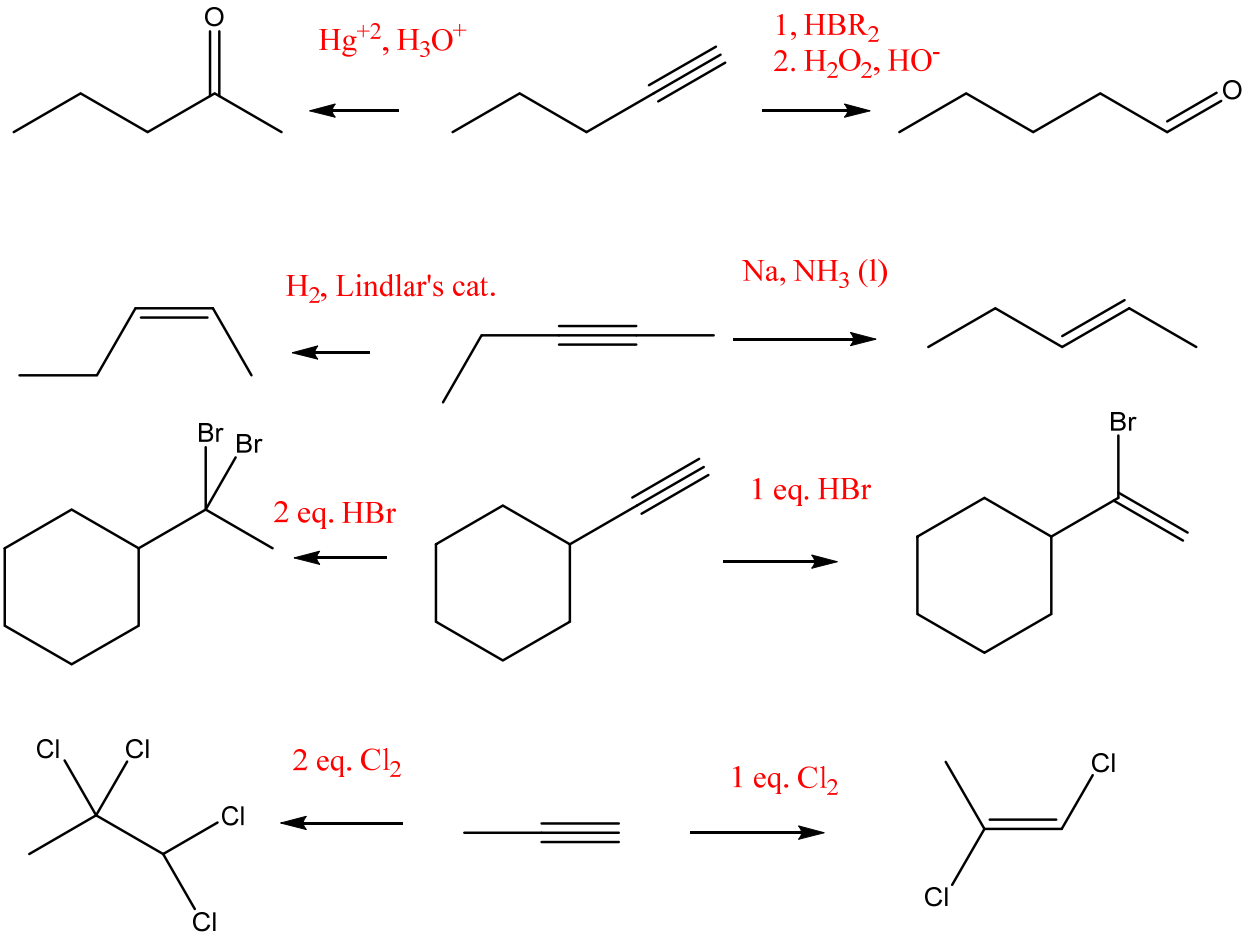
Review 4 answers
Alkynes in Synthesis

Skill 1: Know your reagents!

- There is no shortcut here-just know the reagents for functional group transformations

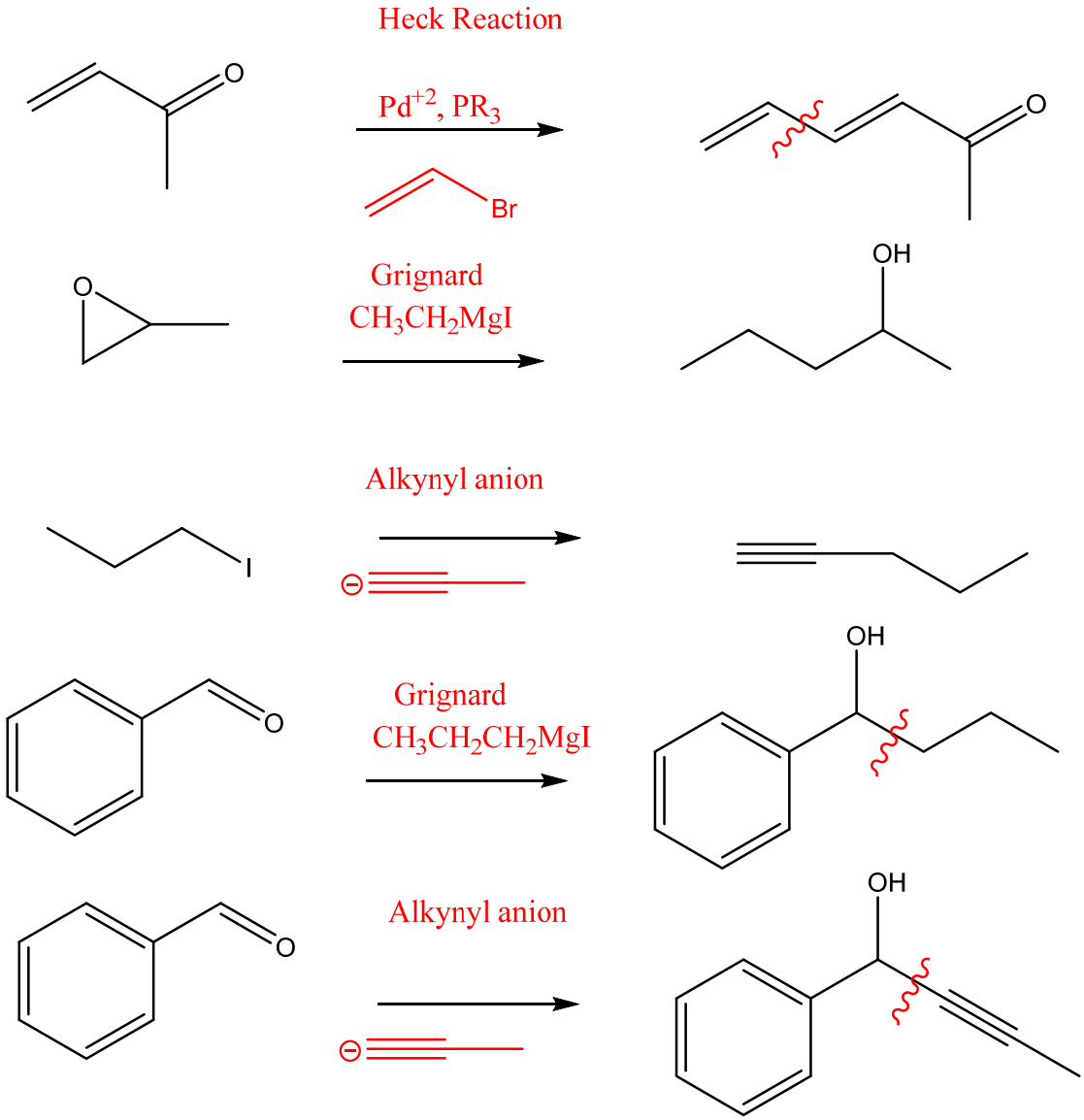
Problem 1. Provide the necessary reagents.



Skill 2: Use retrosynthesis to plan new carbon carbon bond forming reactions

- Compare the starting material to the final product
- Find where the new C-C bond needs to be made
- Is it better to use a Grignard, alkynyl anion, or Heck Reaction?

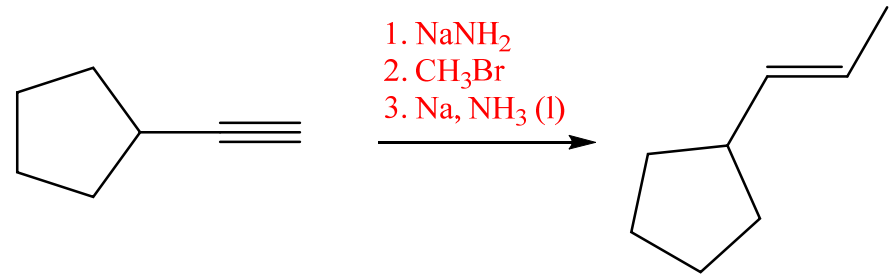
Problem 2. Retrosynthetic analysis. Indicate which bond disconnection to make, then indicate the type of reaction as Grignard, Heck, or alkynyl anion. Provide the necessary nucleophile.

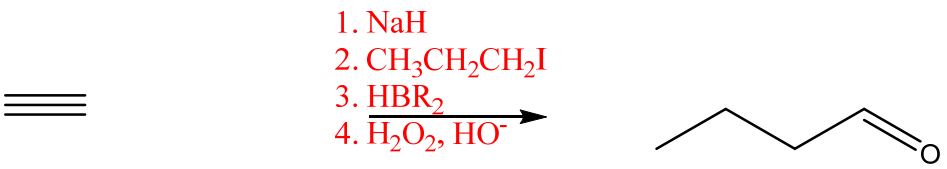


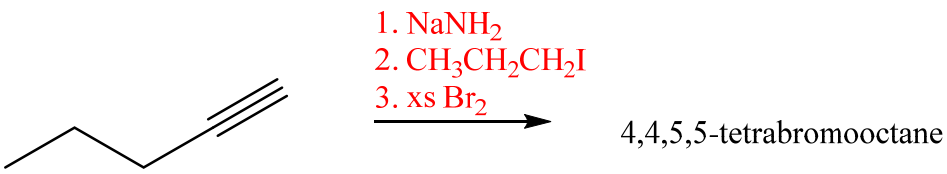
Skill 3: Take regiochemistry and stereochemistry into consideration!

Relatively easier problems:

Problem 3. Propose a multistep synthesis starting from the given material. You may use any inorganic reagents and any carbon source containing 4 or fewer carbons.

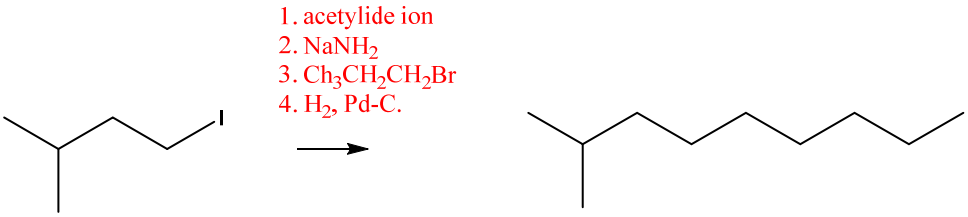


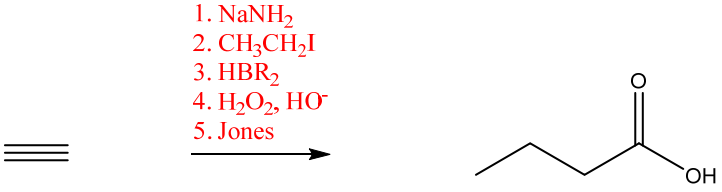




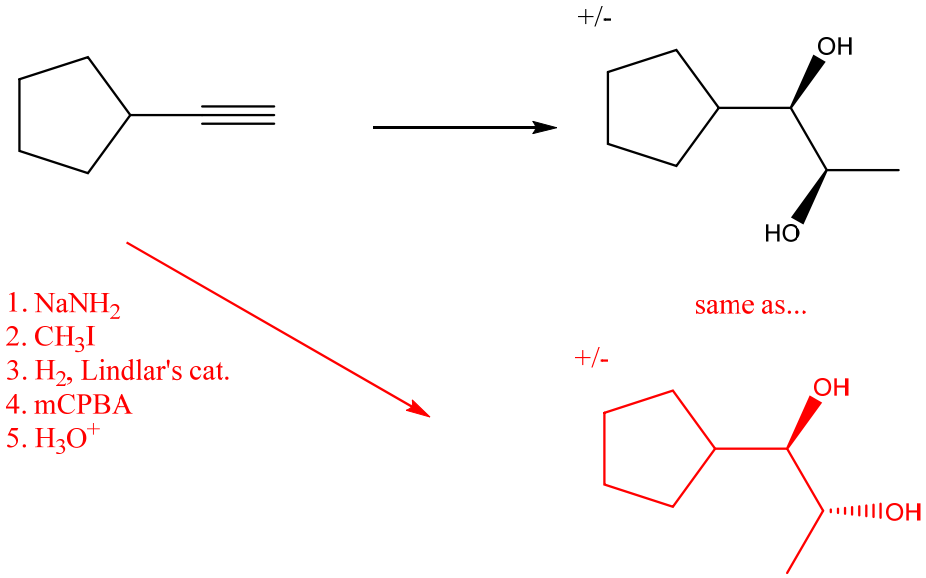
Relatively harder problems:

Problem 4. Propose a multistep synthesis starting from the given material. You may use any inorganic reagents and any carbon source containing 4 or fewer carbons.

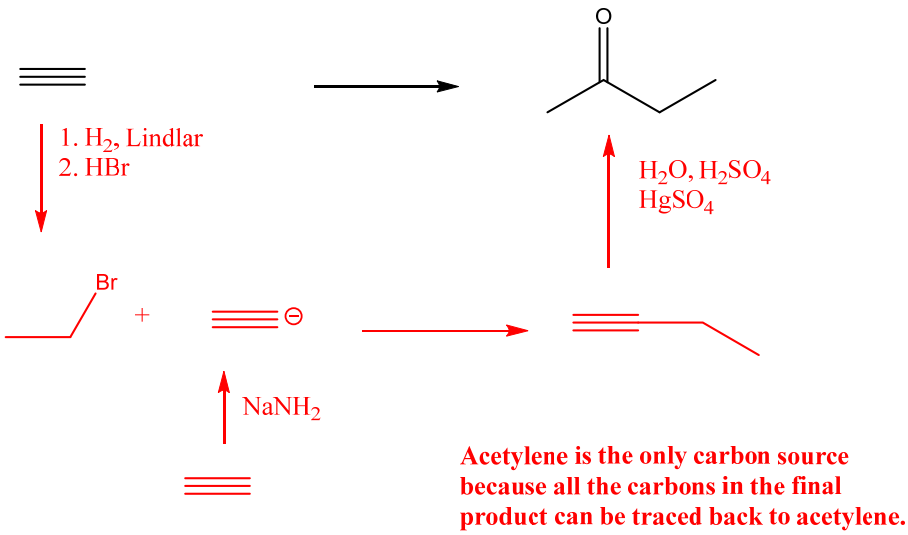




Problem 5. Arati wanted to do the multistep synthesis below and was planning to use OsO_4, but found out that Levin had used up the last of it. She came up with an alternate plan. What was the plan?



Problem 6. Using acetylene as your only carbon source, propose a synthesis. (You can use more than one equivalent of acetylene if you want.)



Acetylene is the only carbon source because all the carbons in the final product can be traced back to acetylene.