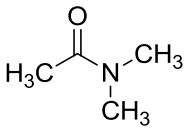
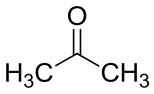
Worksheet 2

1. Rank the following compounds:

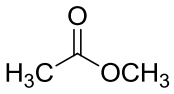
a. Fastest to slowest reaction with PhLi:



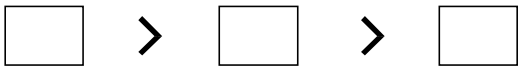
A



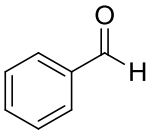
B



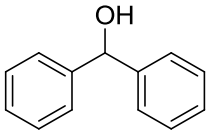
C



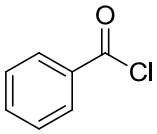
b. Highest to lowest oxidation state:



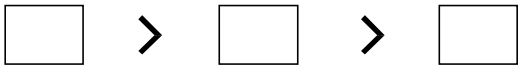
A



B



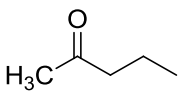
C

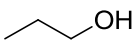


c. Circle the nucleophile that reacts faster with an aldehyde:

Me_2CuLi vs. EtMgCl

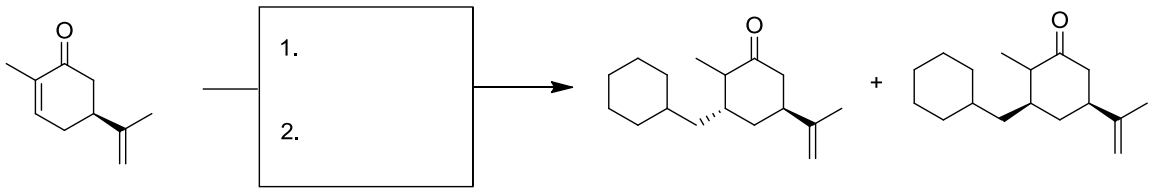
d. Which reacts faster with PhLi



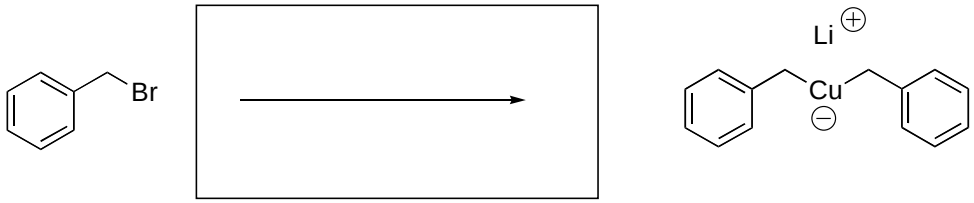


2. Fill in the boxes with the appropriate starting material, reagent or major product. Show stereochemistry where appropriate.

a.

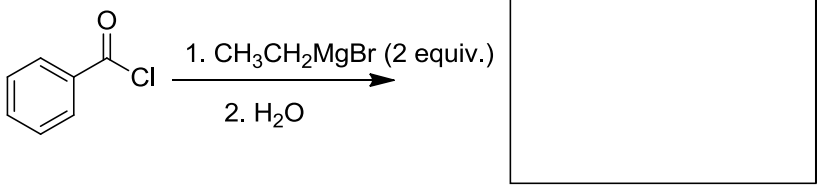


b.

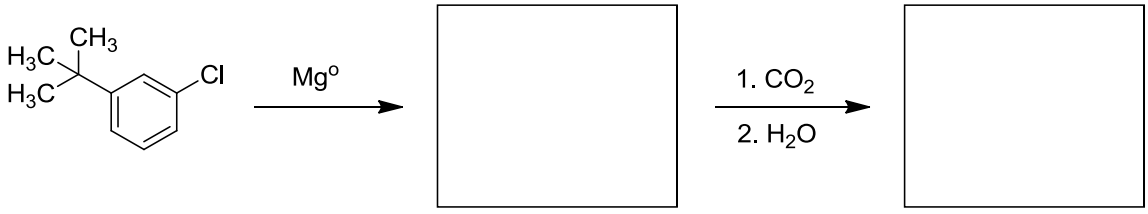


What type of reagent is the product? _____

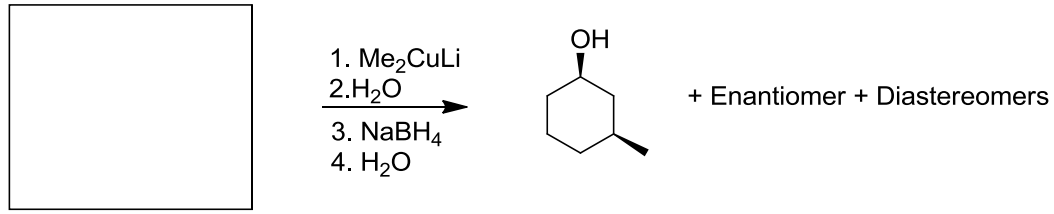
c.



d.

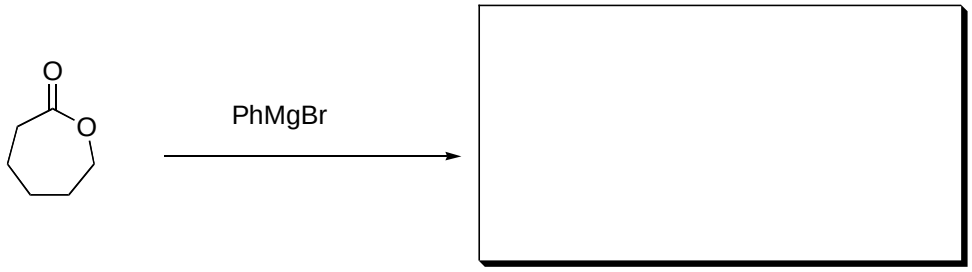


e.

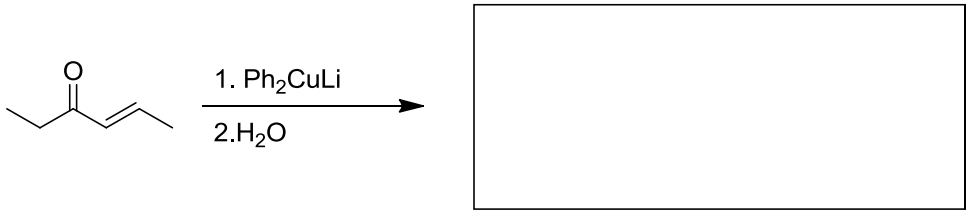


3. Fill in the blank and provide an arrow-pushing mechanism.

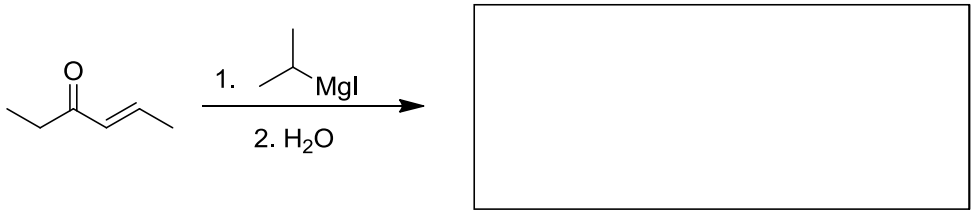
a



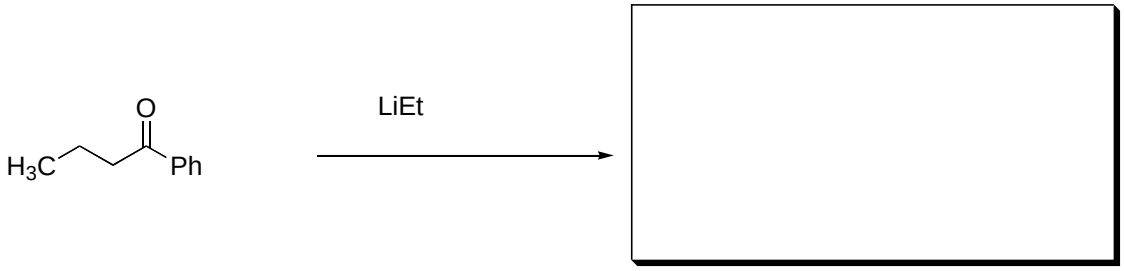
b.



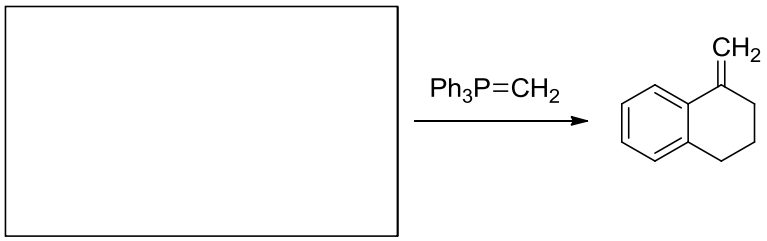
c.



d.

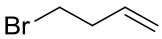


e.

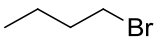


f.

4. a. Propose syntheses of Grignard, alkyl lithium, and cuprate reagents from the following alkyl bromide.

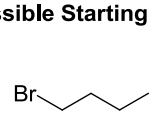


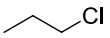
b. Propose a synthesis of Wittig reagent from the following alkyl bromide:

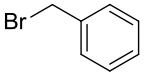


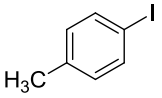
5. Propose syntheses of the targets shown below. You can use any of the possible starting materials and any reagent you wish.

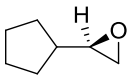
Possible Starting Materials

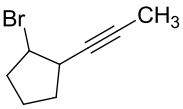


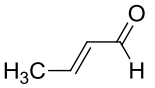


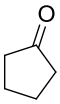


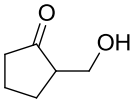




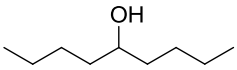




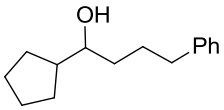




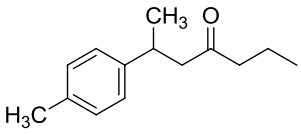
Target A.



Target B.



Target C.



Target D.