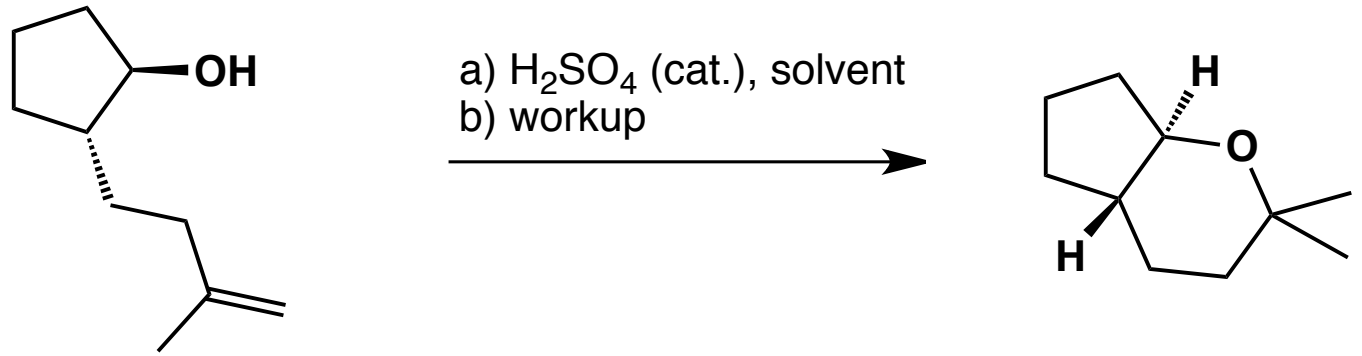
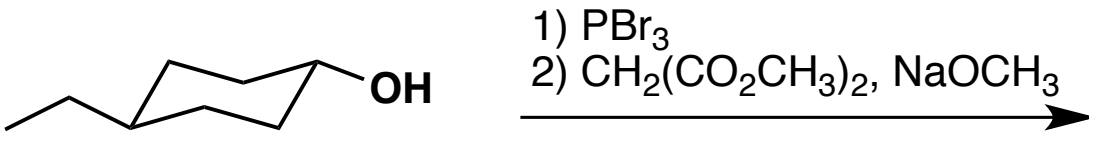
Problem Solving Strategies

- First – “represent” the problem!
  - Identify functional groups
  - Examine reagent(s)
  - Try to “match up” the carbon atoms
    - Are you changing the carbon skeleton of the structure?
    - What functional group conversions are occurring?
    - What are the dominant forms of chemical species (acid/base)
  - Try working backwards
- Check your work (charges, number of carbon atoms, acid/base considerations)

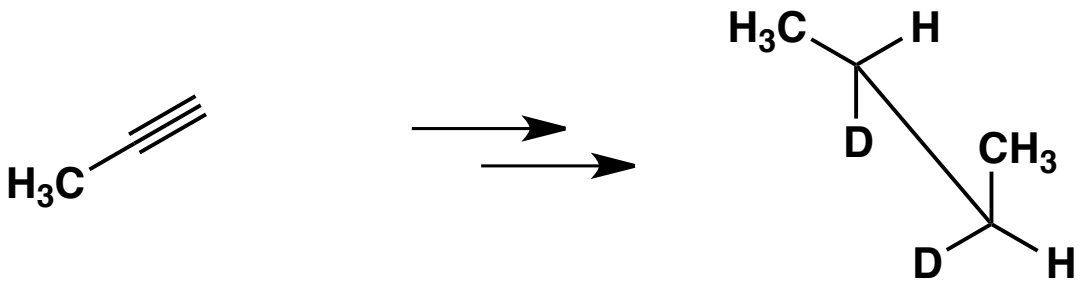
Mechanism



Predict the Product(s)

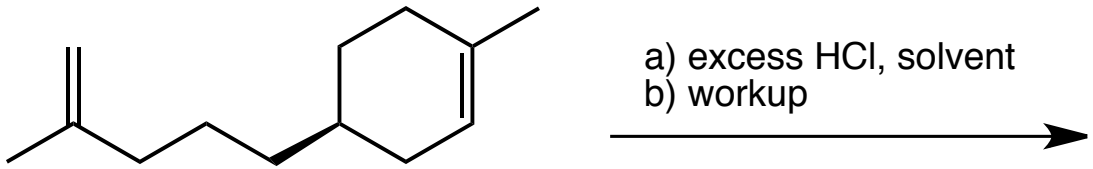


Synthesis

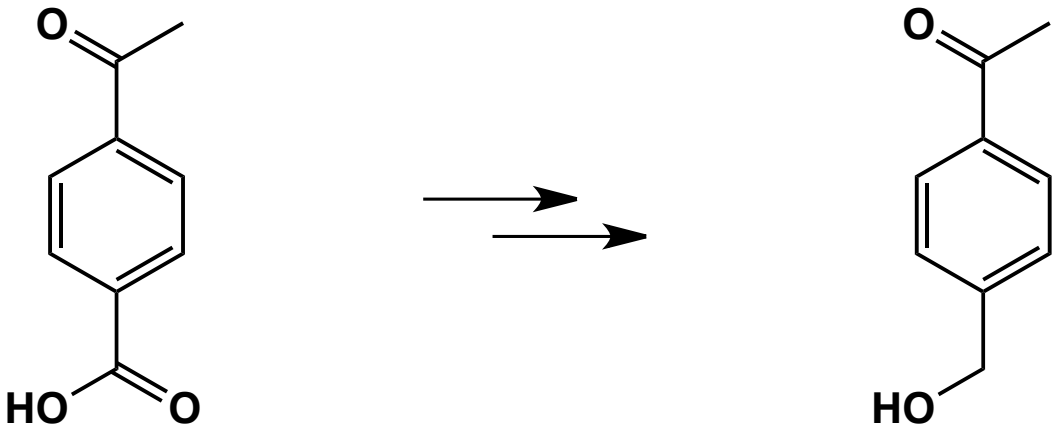


You may use H_2, D_2, and/or NH_3

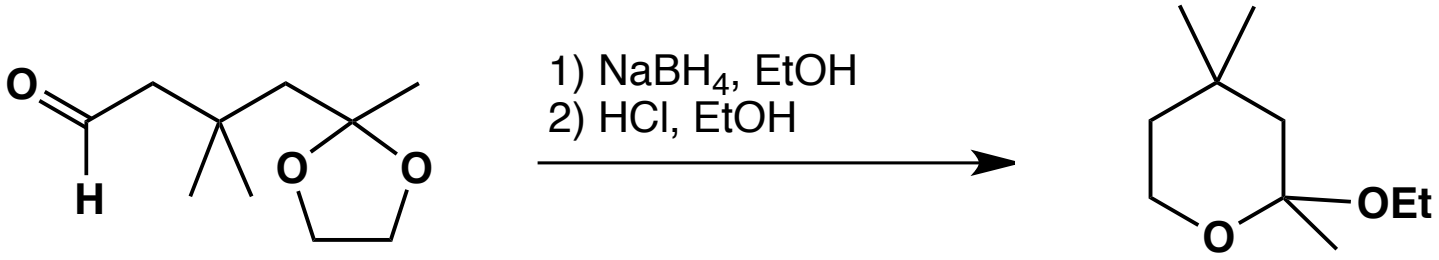
Predict the Product(s)



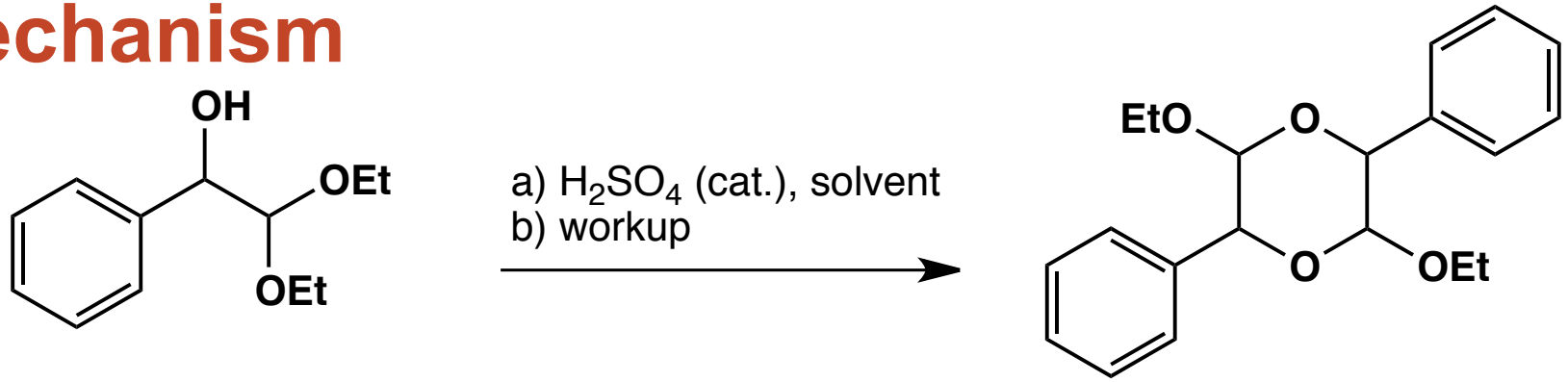
Synthesis



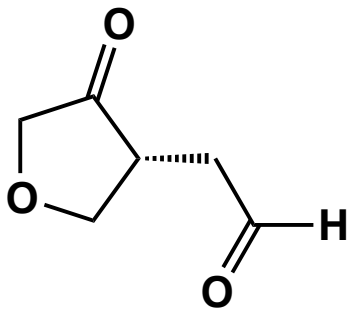
Mechanism



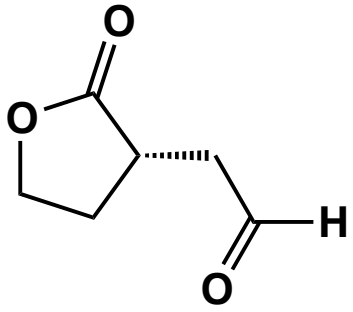
Mechanism



Predict the Product(s)

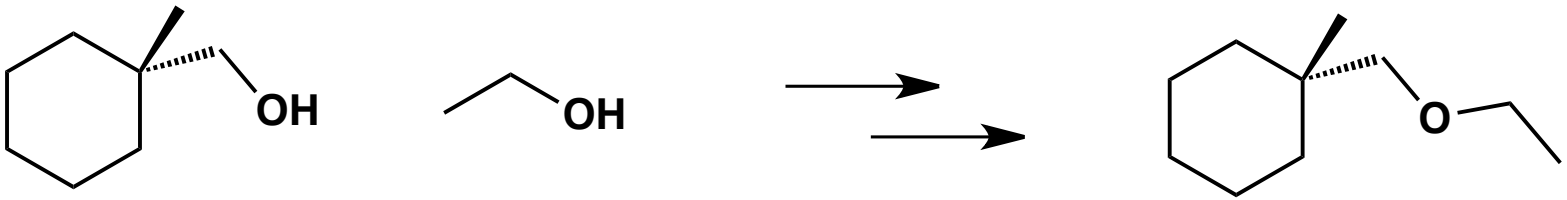


excess $NaBH_4$, H_2O (solvent)

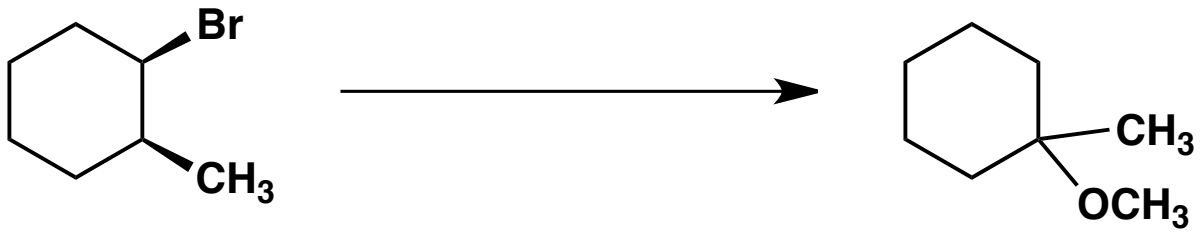


excess $NaBH_4$, H_2O (solvent)

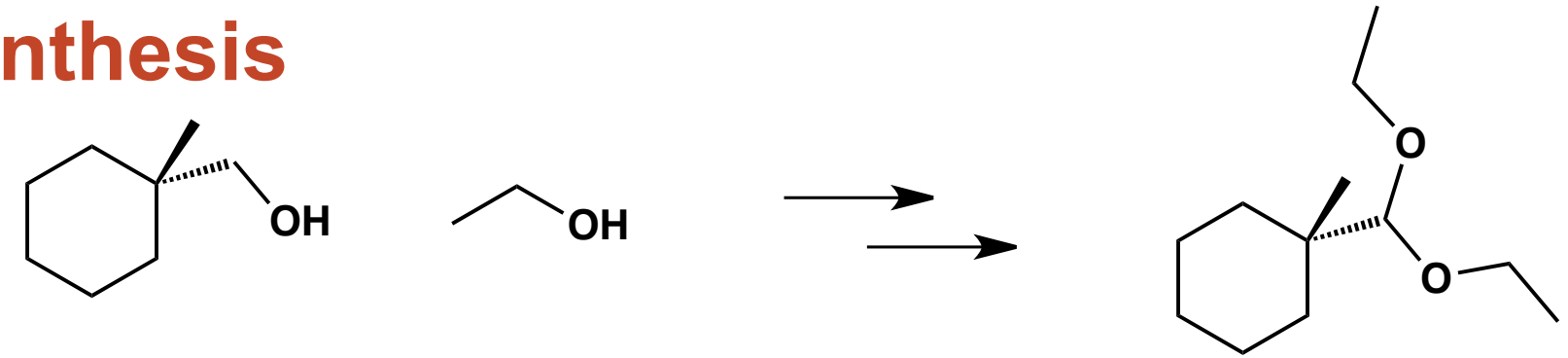
Synthesis



Provide the Reagent(s)



Synthesis



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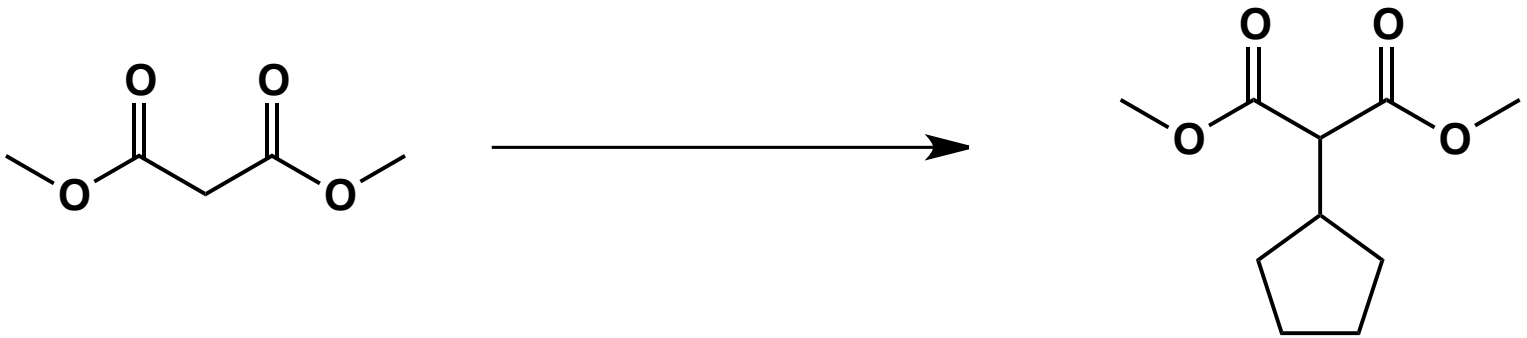

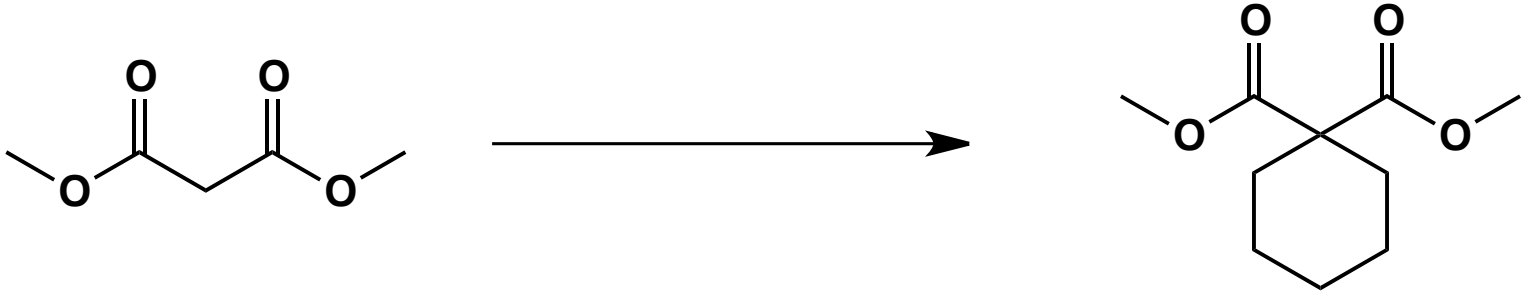

Synthesis