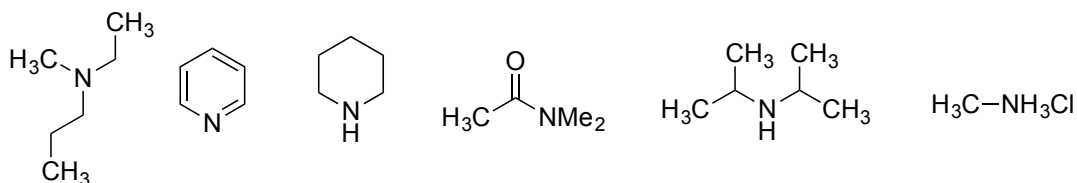
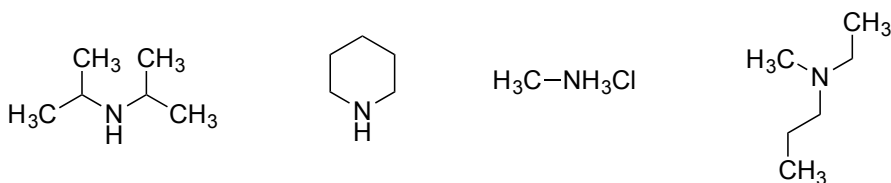


Worksheet 7, Chem 51C, Jarvo

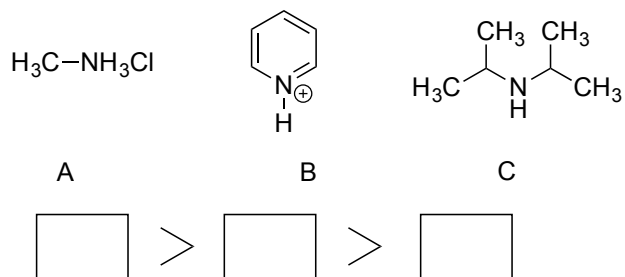
1. a. Label the hybridization of each nitrogen.



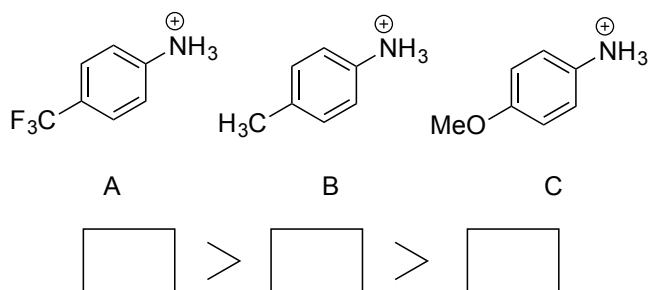
b. Label each amine as 1°, 2°, or 3°



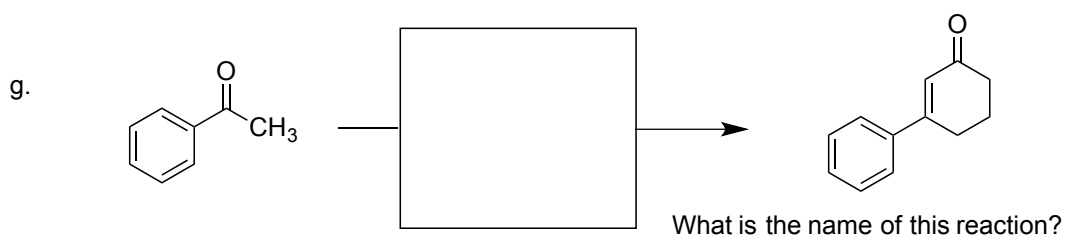
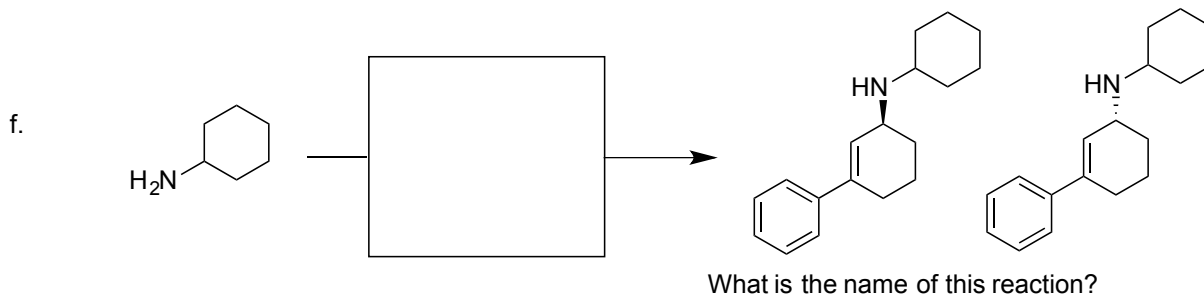
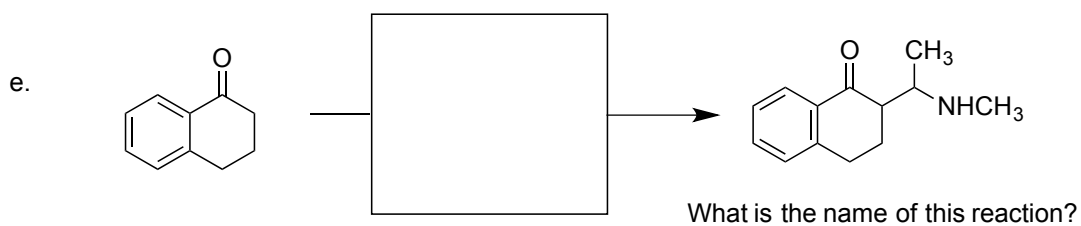
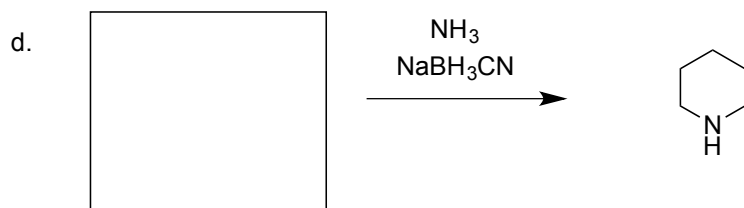
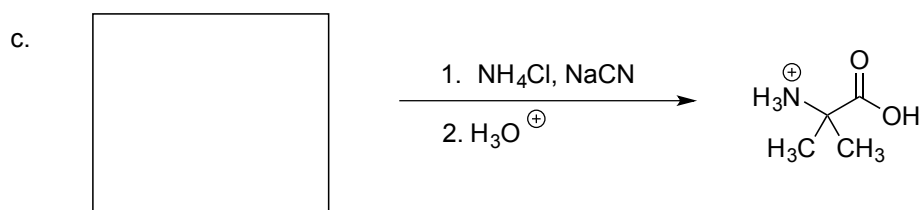
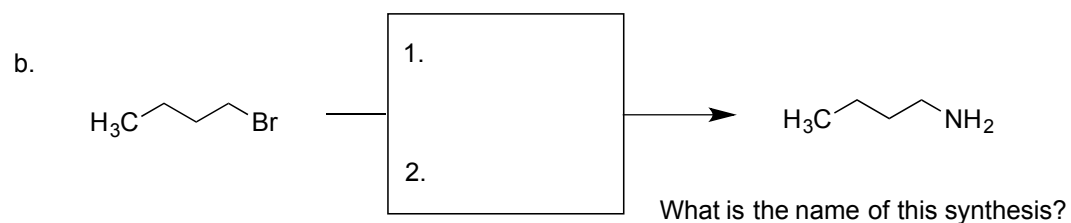
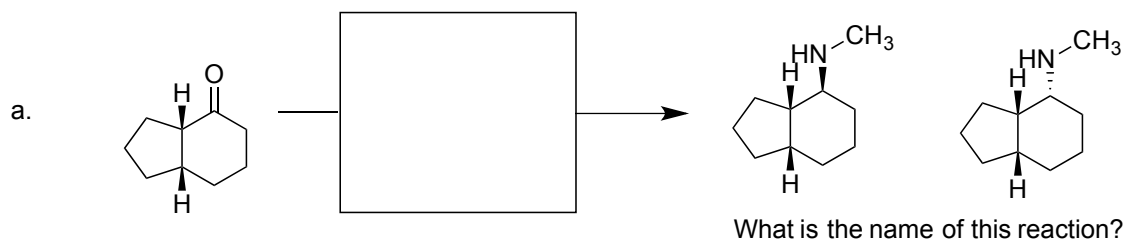
c. Rank from most to least acidic. For each compound, label with the pK_a and draw the conjugate base.



d. Rank from most to least acidic. For each compound, label with the pK_a and draw the conjugate base..

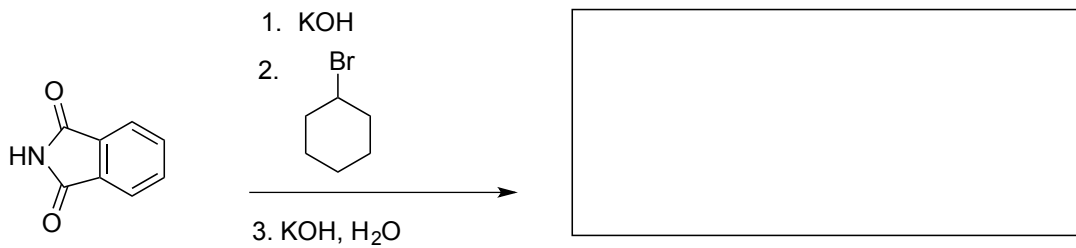


2. Fill in the boxes with the appropriate starting material, reagent or major product.
Show stereochemistry where appropriate

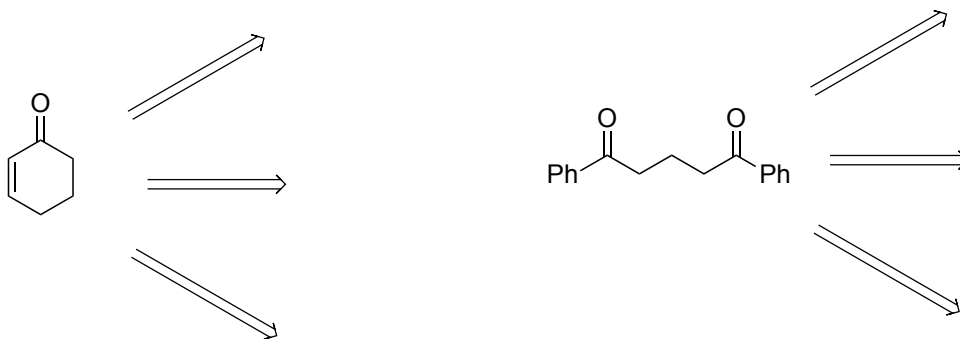


3. Fill in the blank and provide an arrow-pushing mechanism.

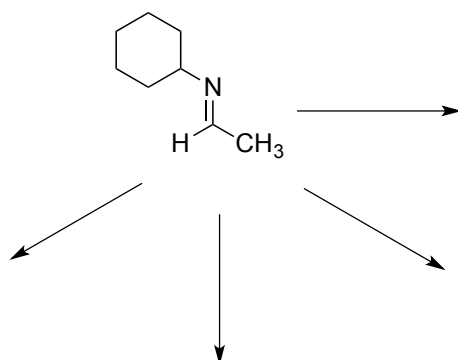
a.



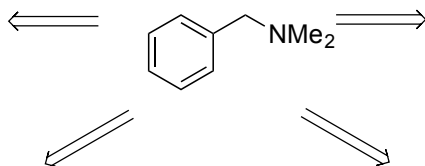
b. Propose 3 different syntheses, each starting from different starting materials



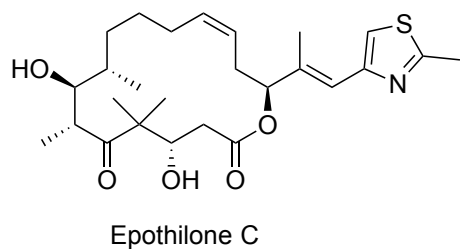
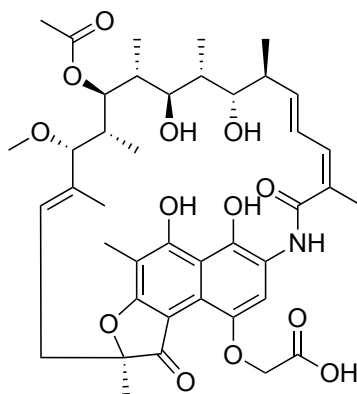
c. Propose 4 different reactions of the imine below, each leading to different products



4. a. Show at least four different methods for synthesis of the amine below, each one from a different starting material.

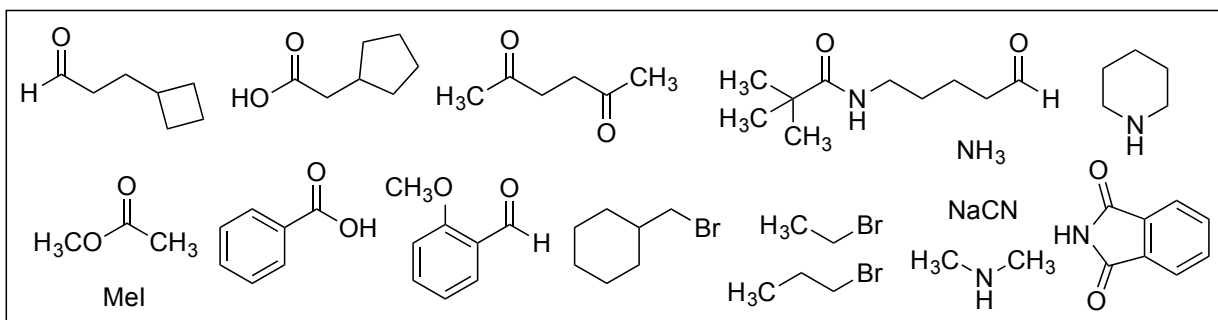


b. In the following natural products, circle and label the following functional groups: lactam, amide, amine, β-hydroxyketone, 1,3-diol

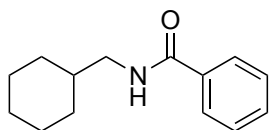


5. Propose syntheses of the targets shown below.

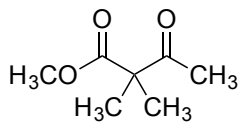
All carbons in the product must come from the starting materials provided, you can use any reagent you wish.



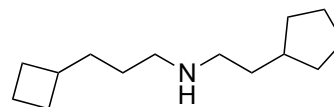
Target A.



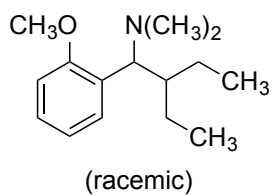
Target B.



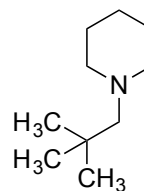
Target C.



Target E.

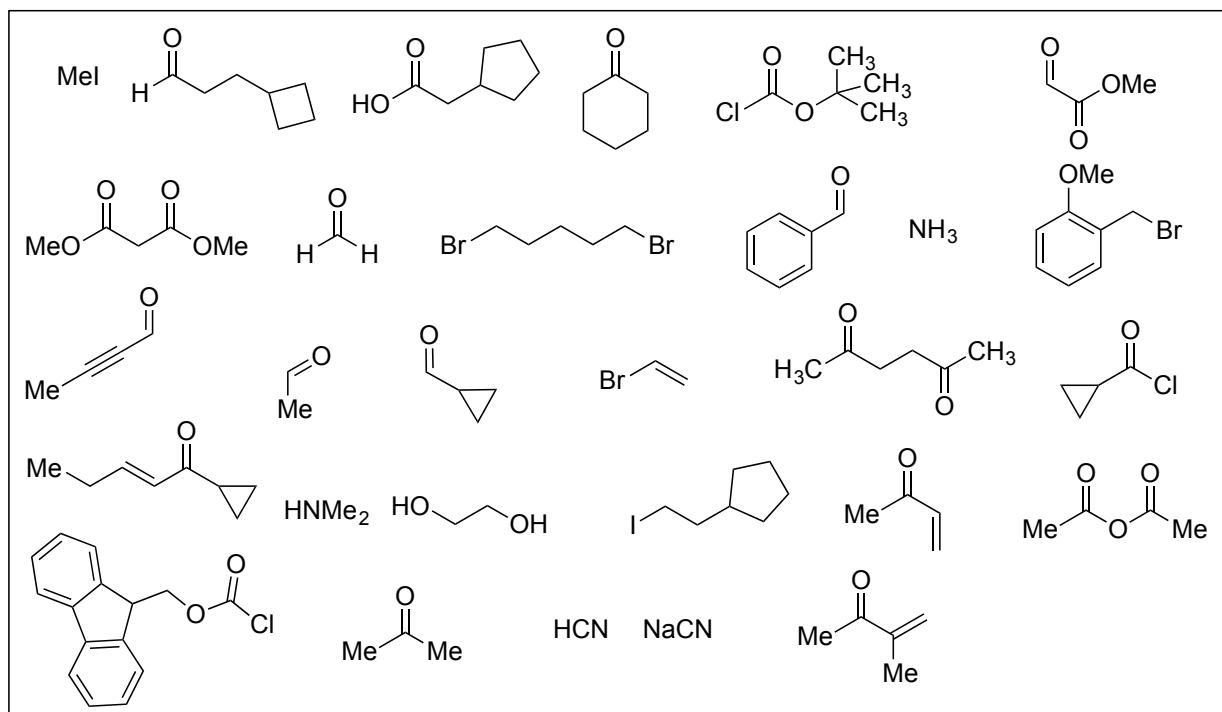


Target F.

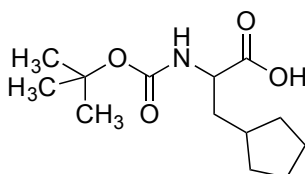


6. Propose syntheses of the targets shown below.

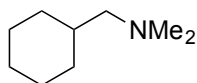
All carbons in the product must come from the starting materials provided, you can use any reagent you wish.



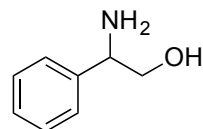
Target A.



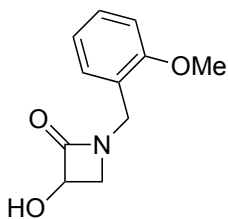
Target B.



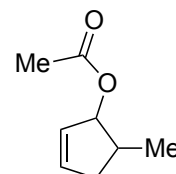
Target C.



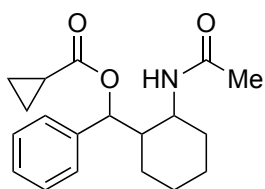
Target D.



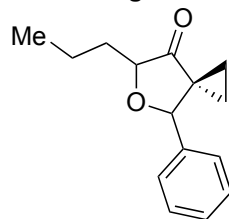
Target F.



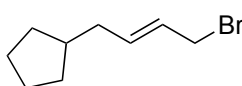
Target G.



Target H.



Target I.



Target J.

