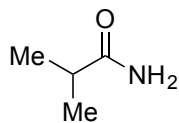
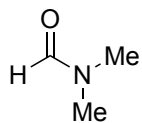
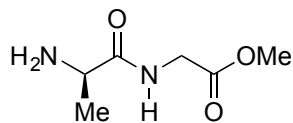


Worksheet 5, Chem 51C, Jarvo

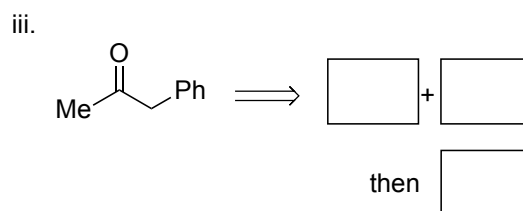
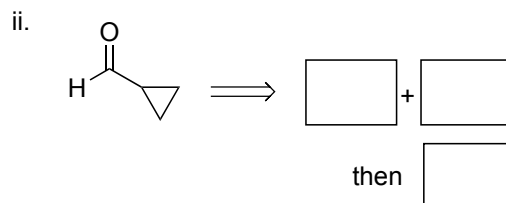
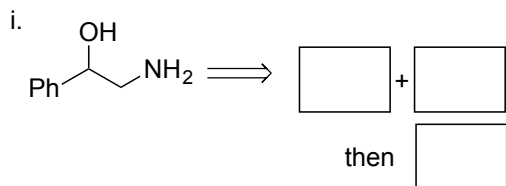
1. a. Label each amide as 1°, 2°, or 3°



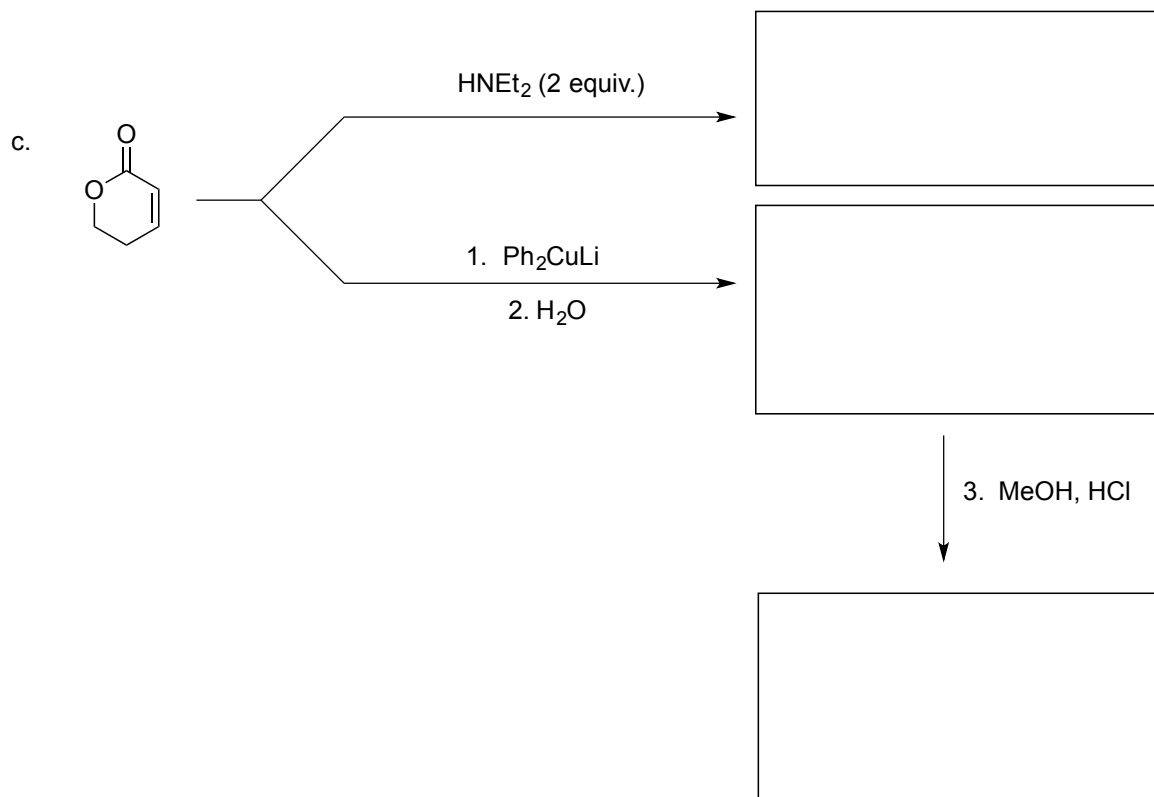
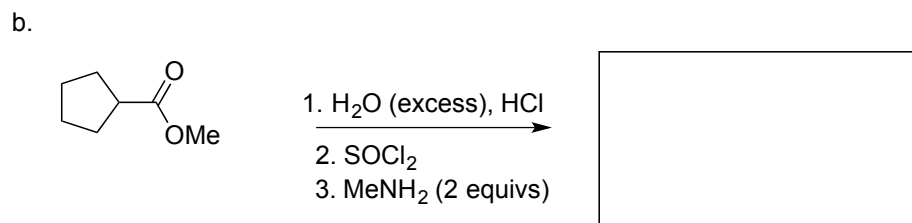
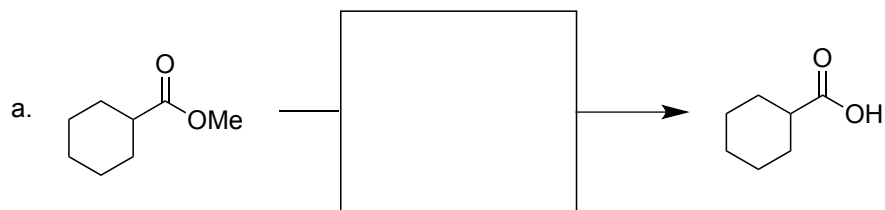
b. Fill in the correct nucleophile and electrophile from the table to complete the retrosyntheses.

Nucleophiles		Electrophiles	
A	NaOH	E	
B	LiAlH ₄	F	
C	DIBAL-H	G	
D	MeMgBr	H	
		I	
		J	H ₃ O ⁺

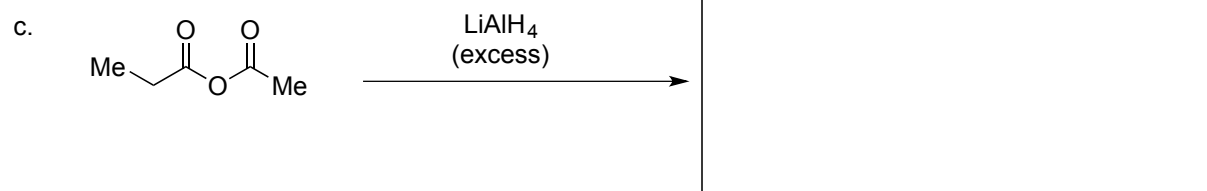
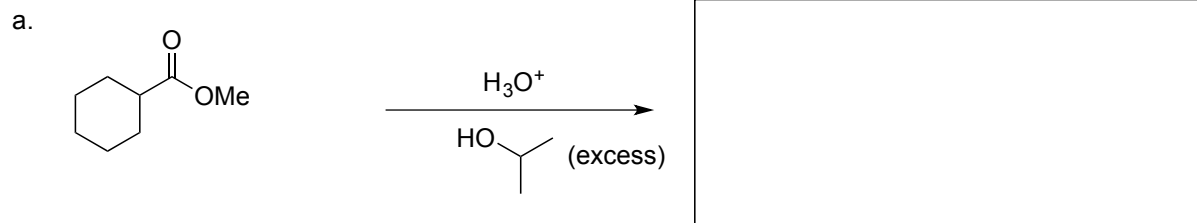
Products



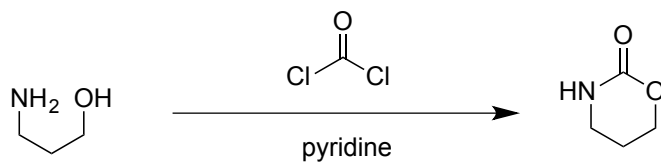
2. Fill in the boxes with the appropriate starting material, reagent or major product.
Show stereochemistry where appropriate



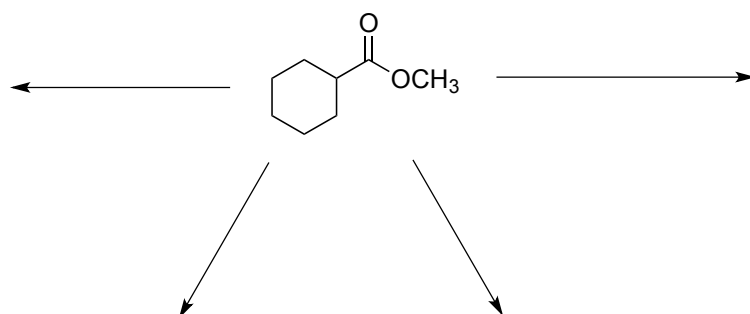
3. Fill in the blank and provide an arrow-pushing mechanism.



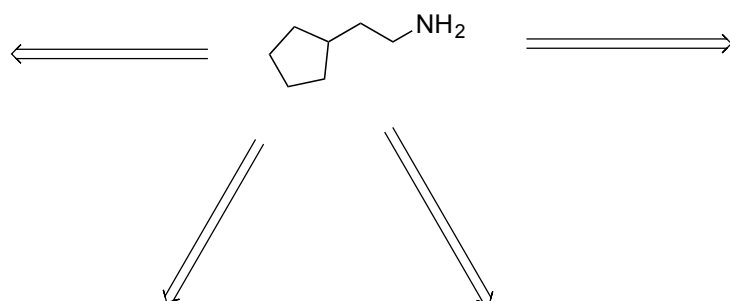
d. Provide an arrow-pushing mechanism



4. Show at least four different transformations of the ester below below, each one generating a different functional group.

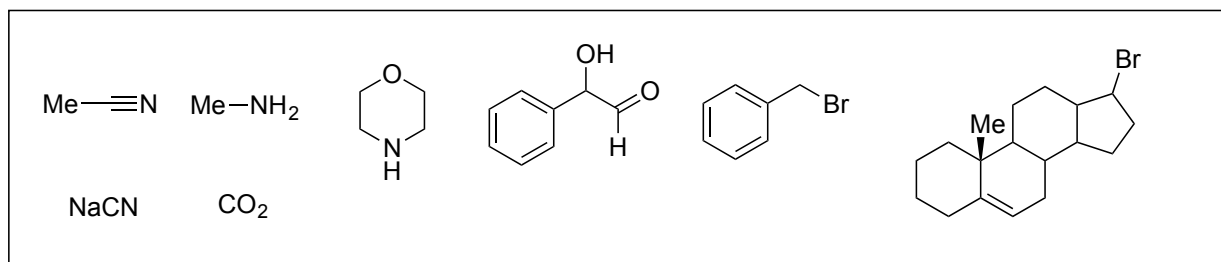


4. Show at least four different syntheses of the amine below below, each one from a different starting material.

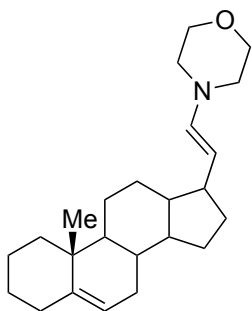


5. Propose syntheses of the targets shown below.

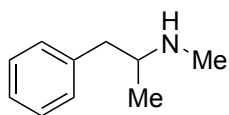
All carbons must come from the starting materials provided, you can use any reagent you wish.



Target A.



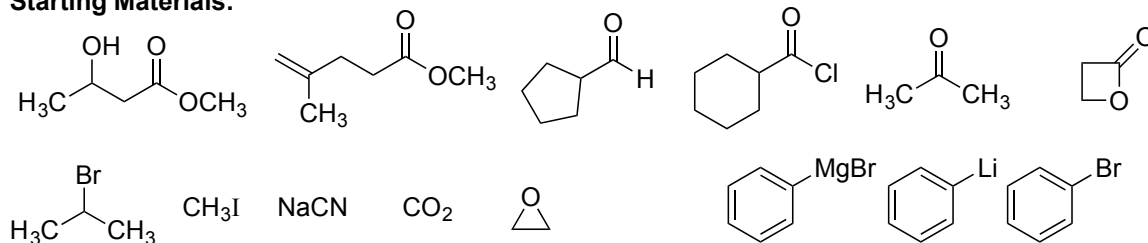
Target B.



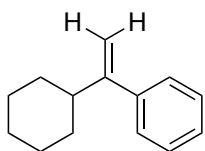
6. Propose syntheses of the targets shown below.

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

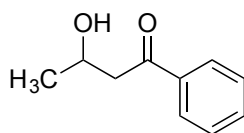
Starting Materials:



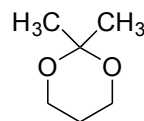
Target A.



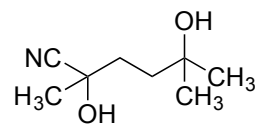
Target B.



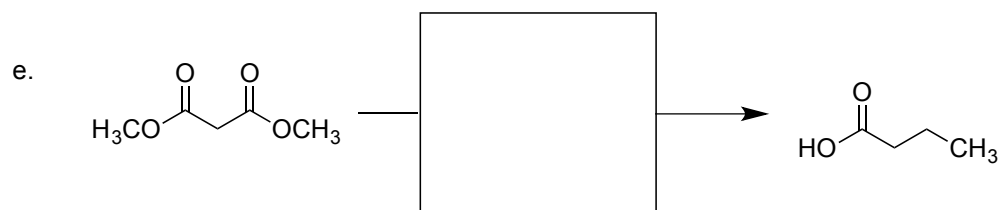
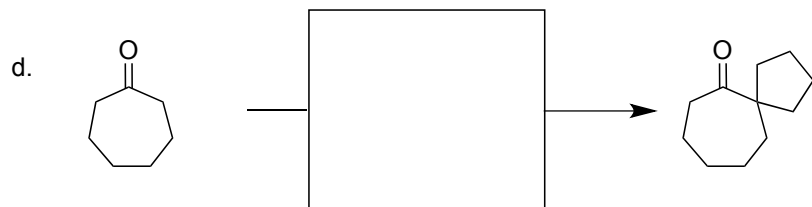
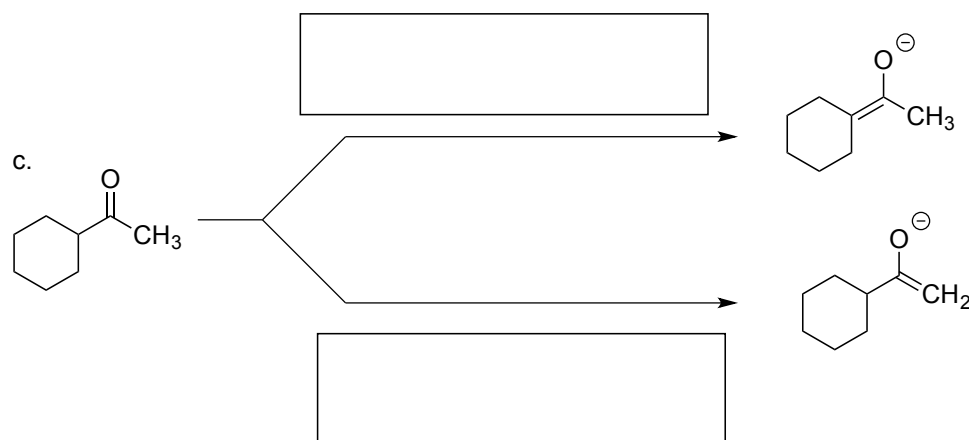
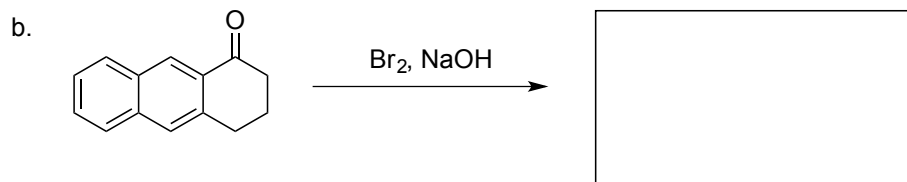
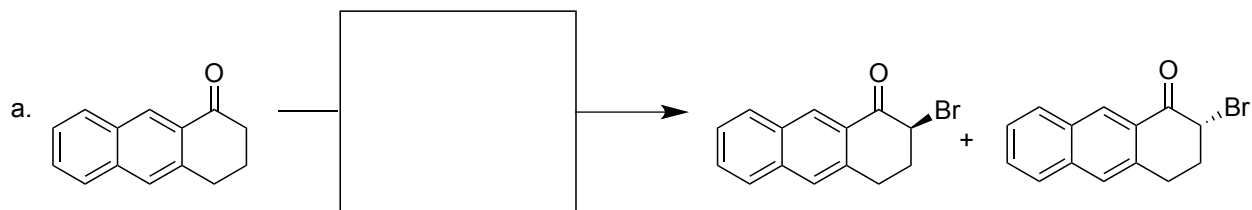
Target C.



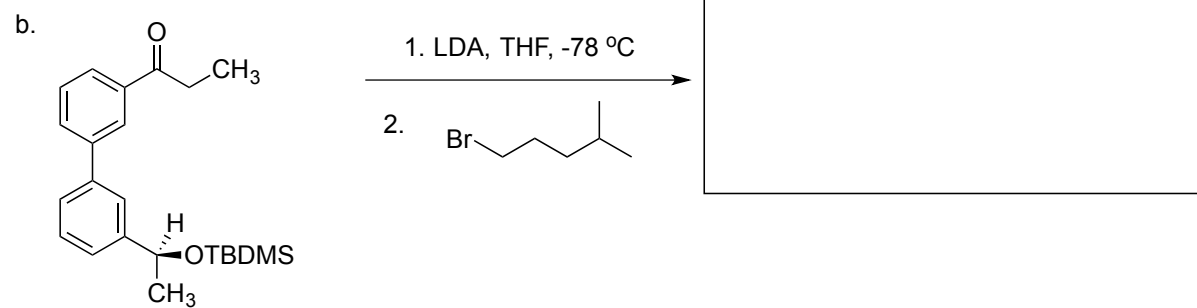
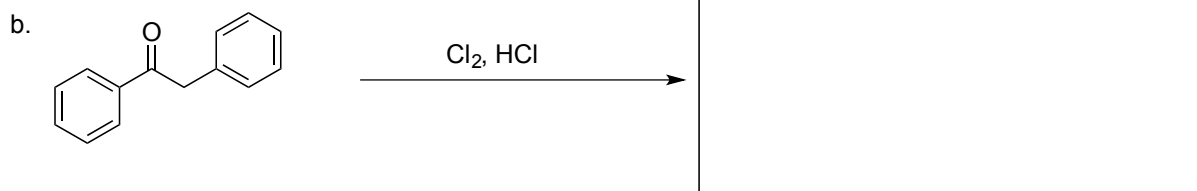
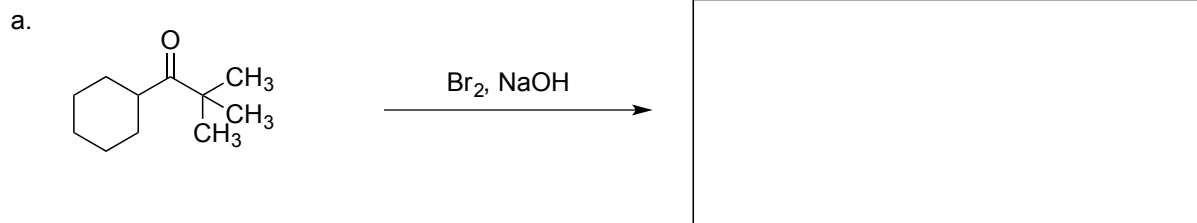
Target D.

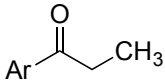


8. Fill in the boxes with the appropriate starting material, reagent or major product.
Show stereochemistry where appropriate



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



Note: for your arrow-pushing mechanism, feel free to abbreviate the starting material as 

10. Consider formation of enolates, below

- Draw both enolates

- which is the kinetic enolate?

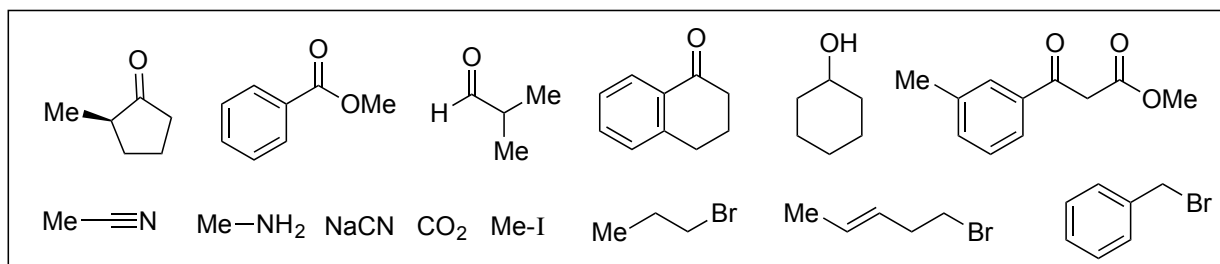
- which is the thermodynamic enolate?

What conditions would you employ to favor formation of the kinetic enolate? The thermodynamic enolate?

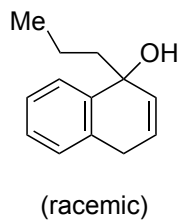


11. Propose syntheses of the targets shown below.

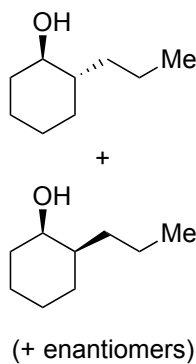
All carbons in the product must come from the starting materials provided, you can use any reagent you wish.



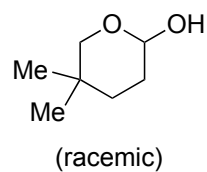
Target A.



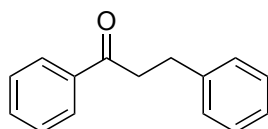
Target B.



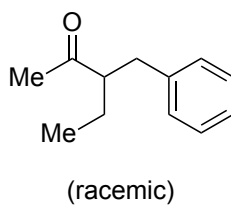
Target C.



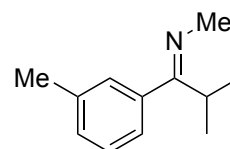
Target D.



Target E.



Target F.



Target G.

