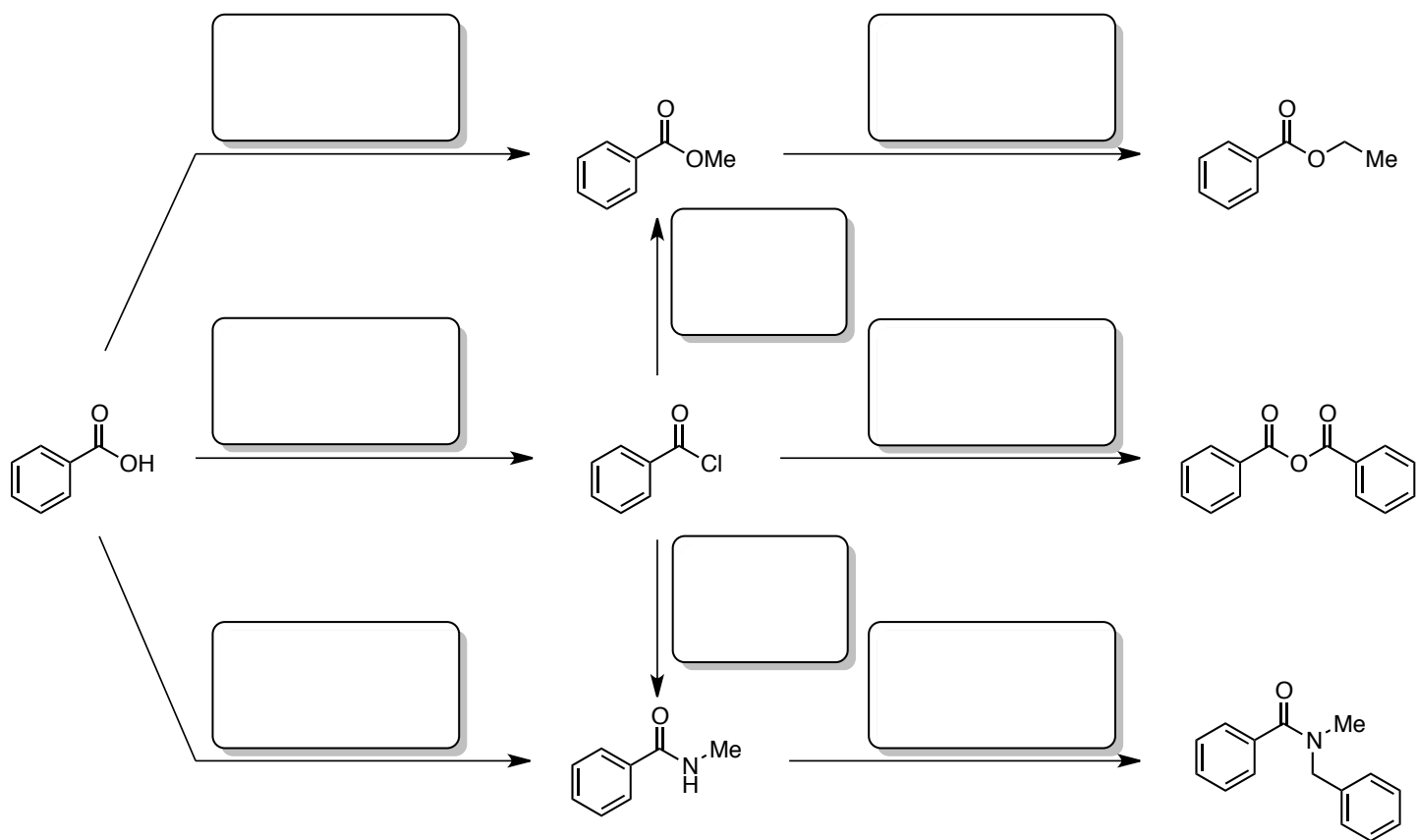
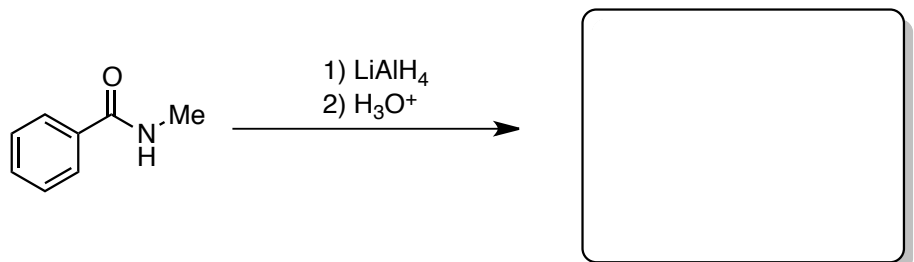
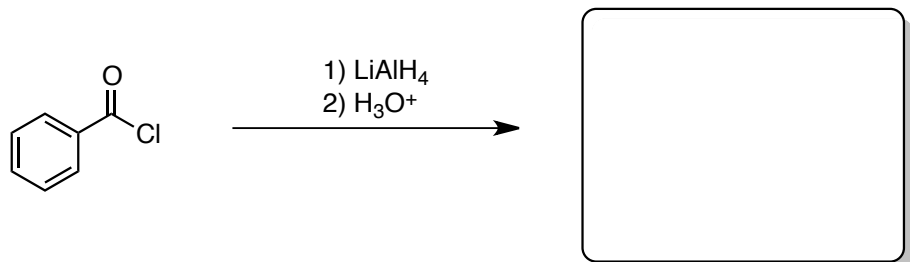
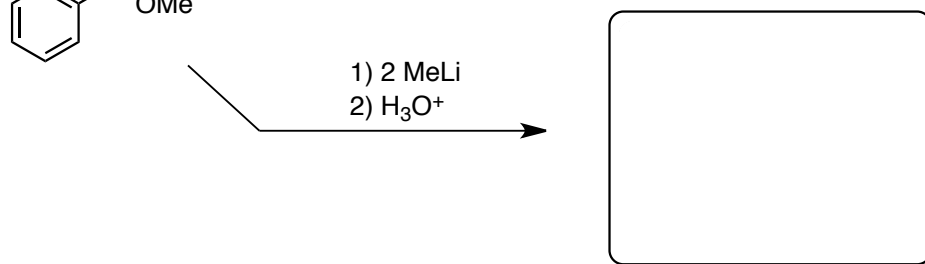
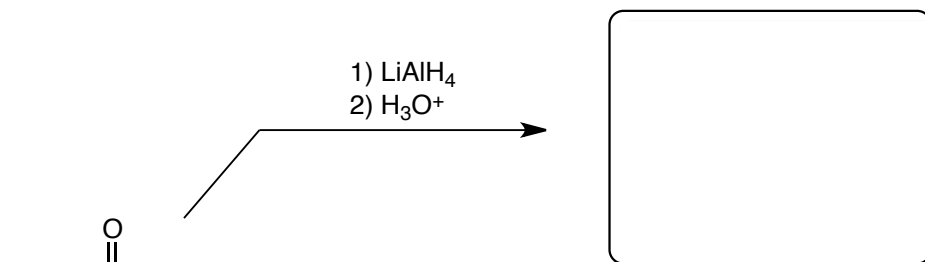
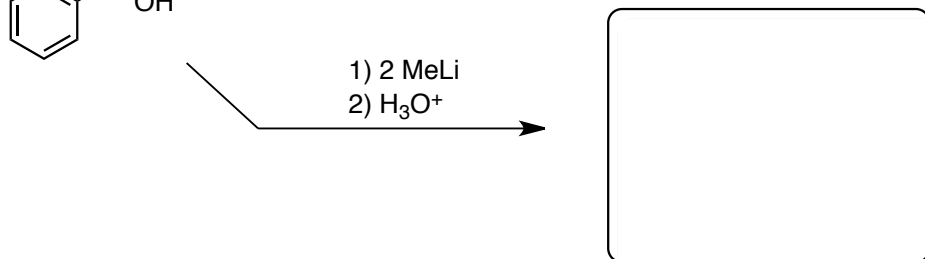
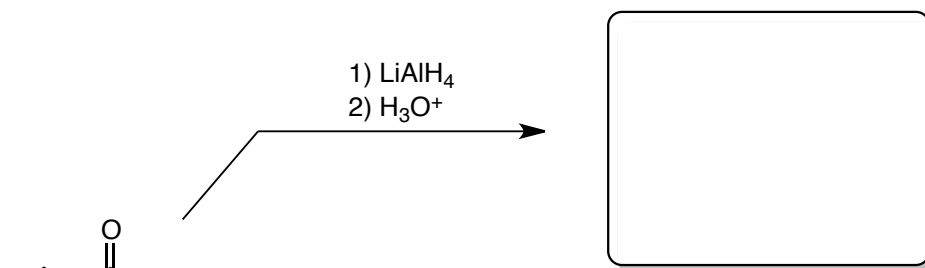


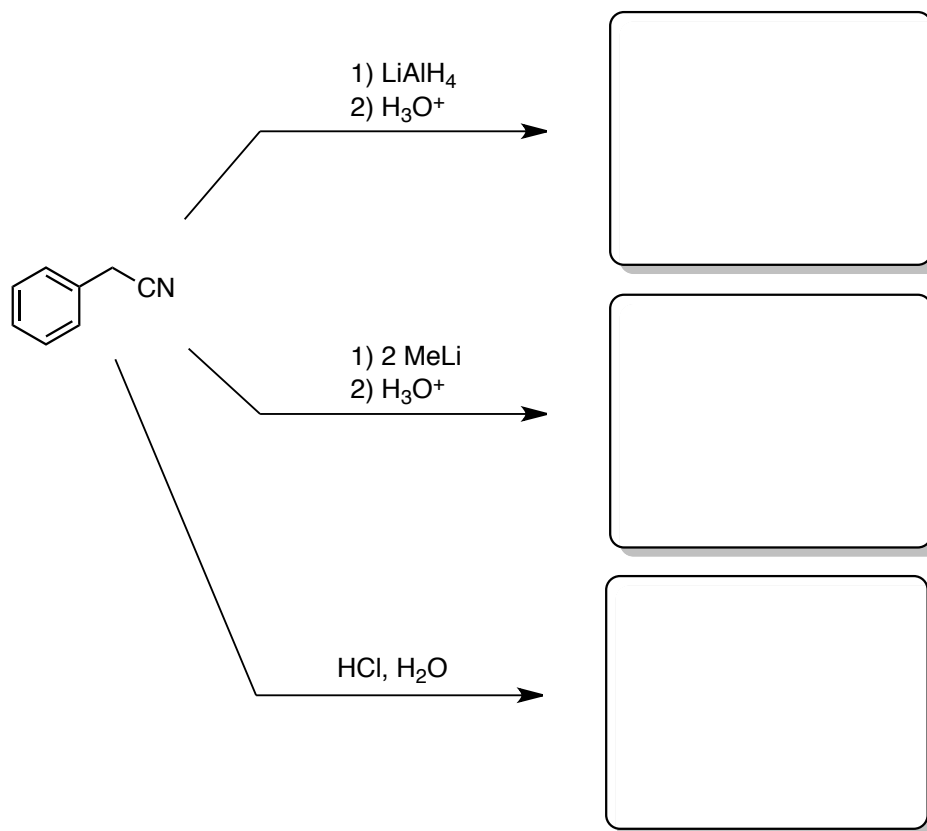
Discussion Section 10: Carboxylic Acids and Derivatives

1. Please provide the necessary reagents to complete the following transformations.



2. Please predict the product of the following reactions. Note: You should be able to draw arrow-pushing mechanisms for each of these!



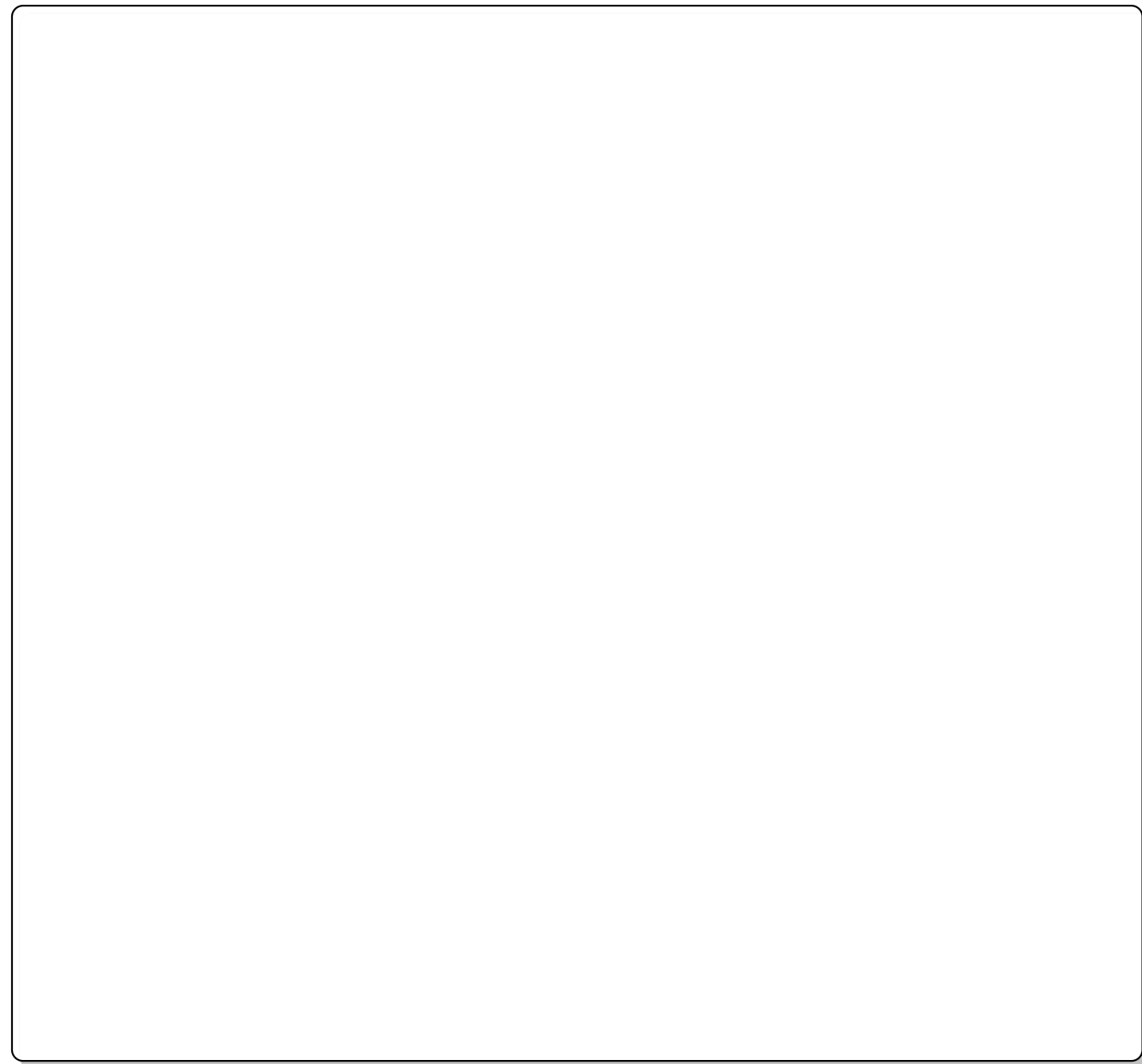
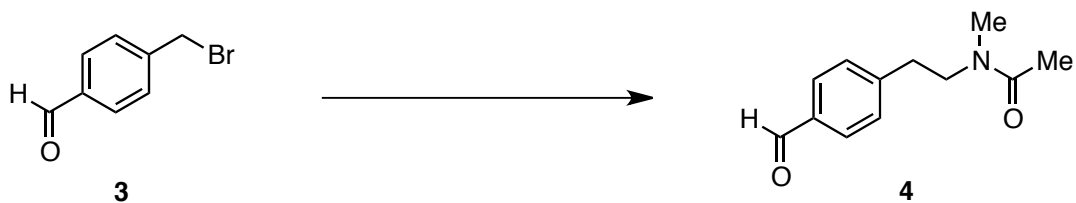


3. Please suggest a synthesis of ester **2** starting from 3-hexene (**1**) and any other reagents you need that contain two (2) or fewer carbons.



Blank area for writing the synthesis scheme.

4. (a) Please suggest a synthesis of amide **4** starting from aldehyde **3** and any other reagents you need that contain two (2) or fewer carbons.



(b) Now draw a reasonable arrow-pushing mechanism for each step of your proposed synthesis.

(c) **Bonus Track:** How about a synthesis of aldehyde **3** from benzene?

