

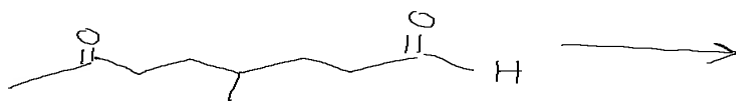
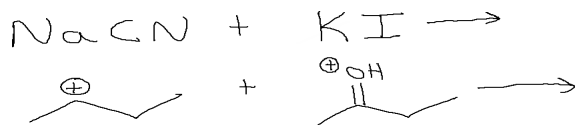
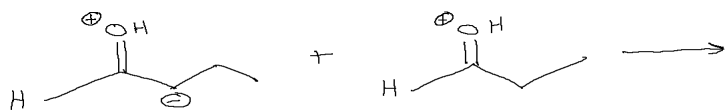
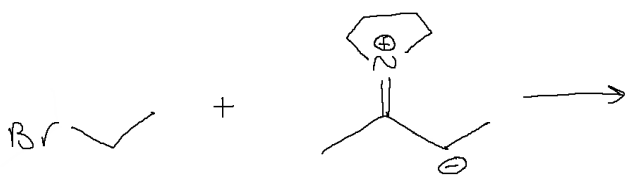
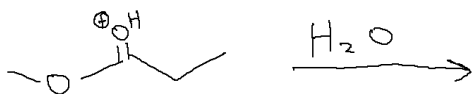
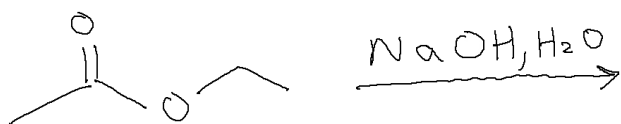
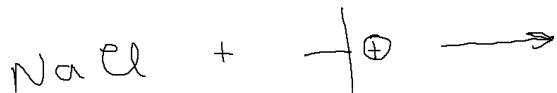
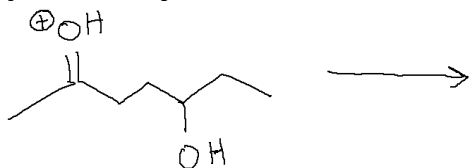
How to draw reasonable electron-pushing arrows
 Homework problems for video (4)
 Answers in video (5)

1. For each of the following sets of starting materials:

(a) Draw reasonable electron-pushing arrows. DO NOT DRAW ACID-BASE ARROWS, ONLY NUCLEOPHILE, ELECTROPHILE, AND LEAVING GROUP ARROWS. If no arrows are reasonable, write "no reaction".

(b) Identify the roles being played in the reaction.

(c) Draw the product, based on the arrows you drew in part (a).

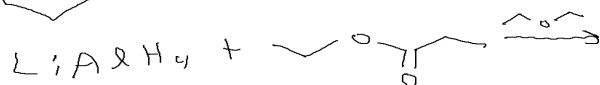
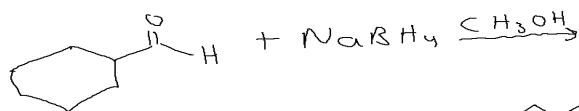
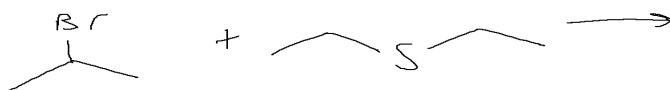
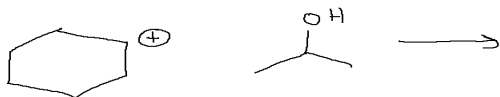
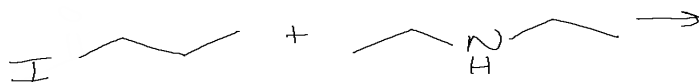
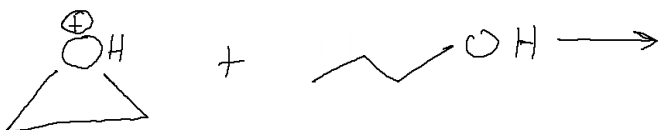
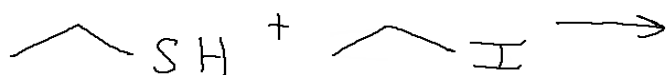
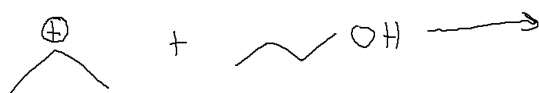
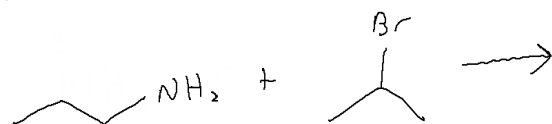


2. For each of the following sets of starting materials:

(a) Draw reasonable electron-pushing arrows. DO NOT DRAW ACID-BASE ARROWS, ONLY NUCLEOPHILE, ELECTROPHILE, AND LEAVING GROUP ARROWS. If no arrows are reasonable, write "no reaction".

(b) Identify the roles being played in the reaction.

(c) Draw the product, based on the arrows you drew in part (a).



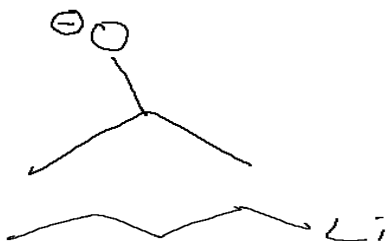
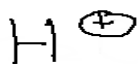
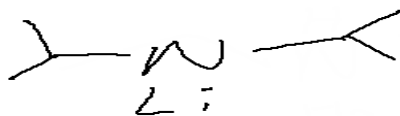
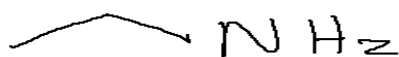
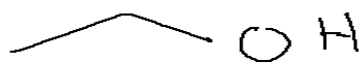
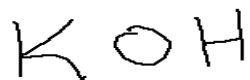
2. What are the five major "roles" atoms can play in organic chemistry? Write the definition of each role.

3. What is an example of an acid that we can use to remember the definition of "acid"? What is an example of a base that we can use to remember the definition of "base"?

3. An atom with a negative formal charge is likely to play what role(s)?

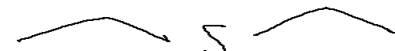
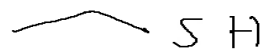
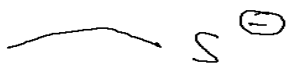
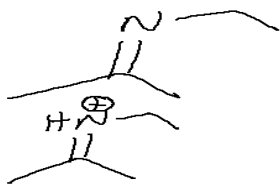
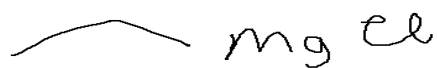
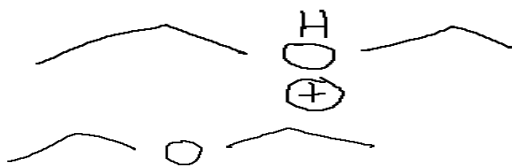
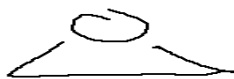
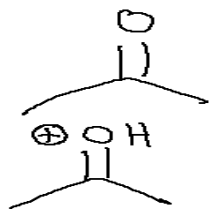
4. An atom with a positive formal charge is likely to play what role(s)?

5. For each starting material, identify whether it is likely to play the role of acid, base, both, or neither.



5. continued

HCl



HBr