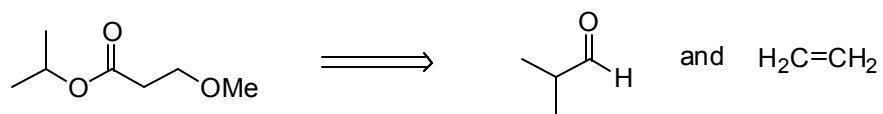


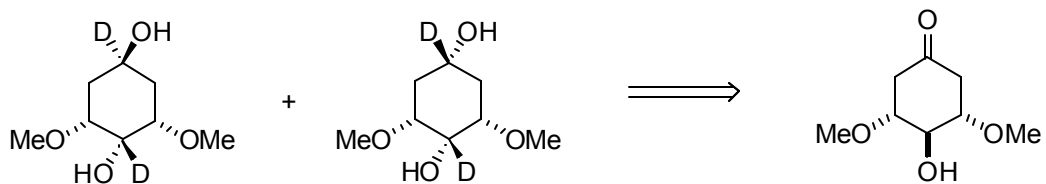
## Section Problem Set

### The Basics of Synthesis

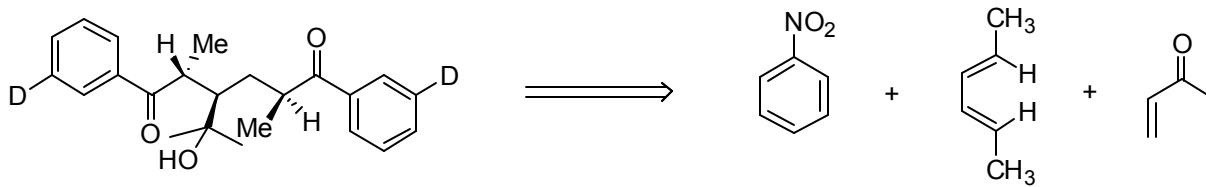
**Problem 1** Provide a rational synthesis of the ester below from the indicated starting materials and any necessary reagents.



**Problem 2** Professor N.M. Arr, a famous Knowbell Laureate, needs to make both of the deuterium-labeled compounds shown below from his chiral starting material. It is very important that he isolate pure forms of both diastereomers.



**Problem 3** Do this:



**Problem 4** You'd better learn your reactions. We haven't been covering every single specific example in class and section, but you've still got to know them. The Loudon/Stowell study guide is a great place to pick them up. When you see a new reaction, ask yourself two questions:

- 1) What is the mechanism?
- 2) How can I use this in synthesis?

Fill in the blanks of this "roadmap" problem:

Solution

