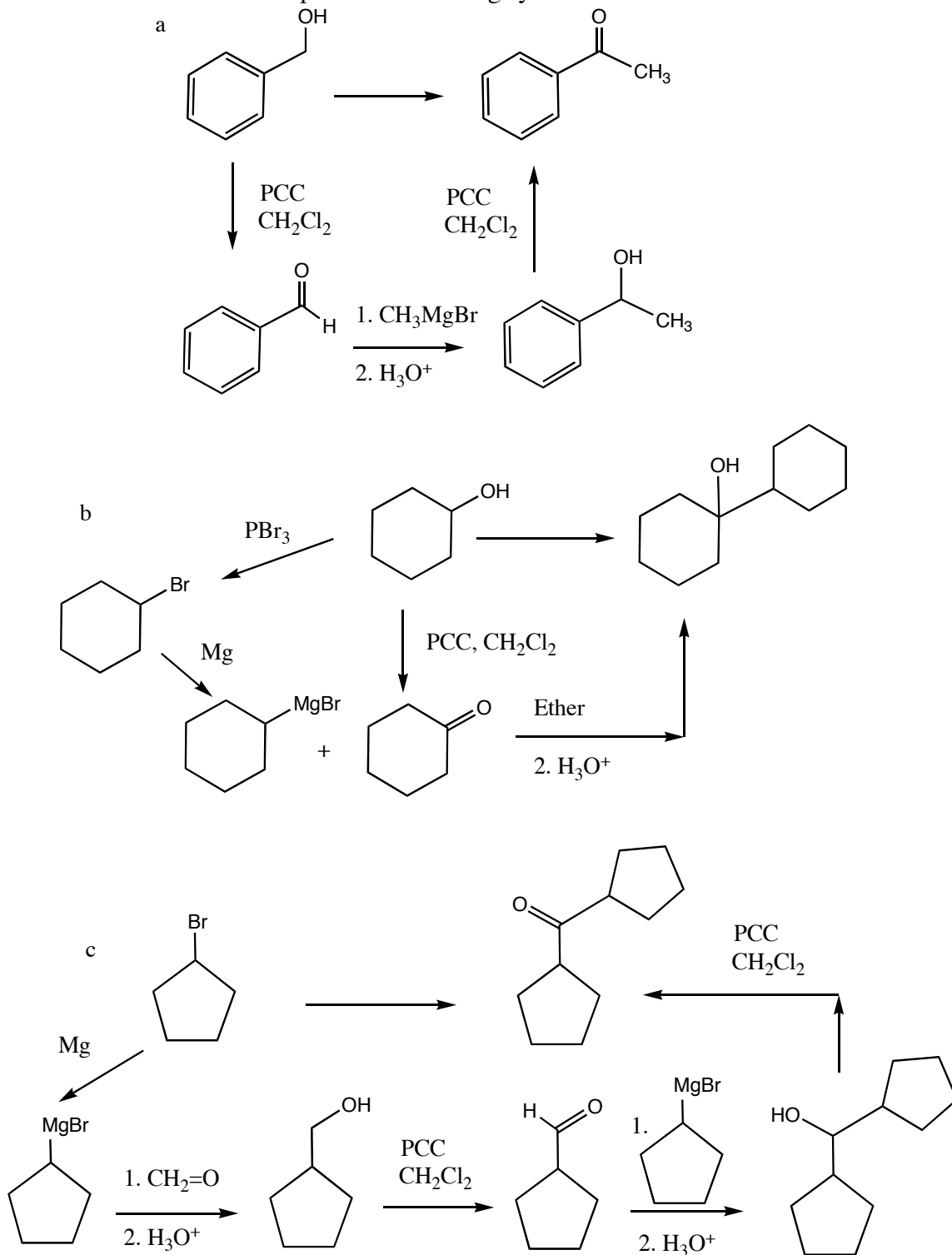
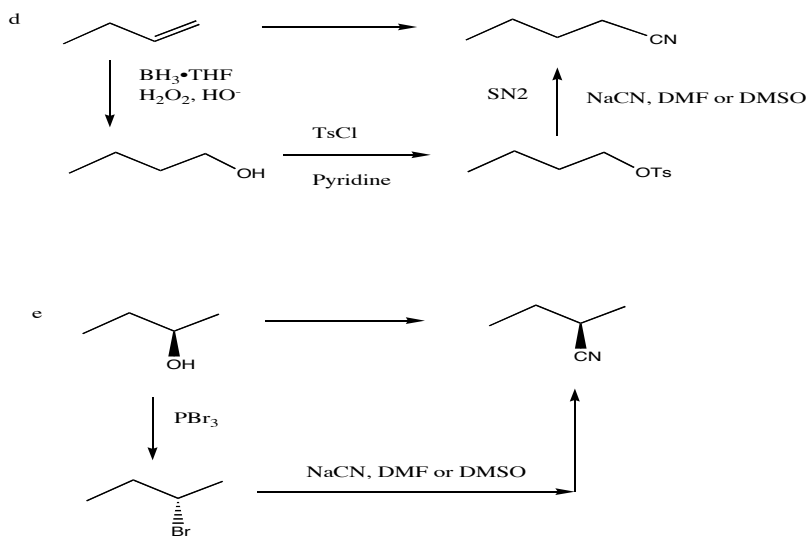


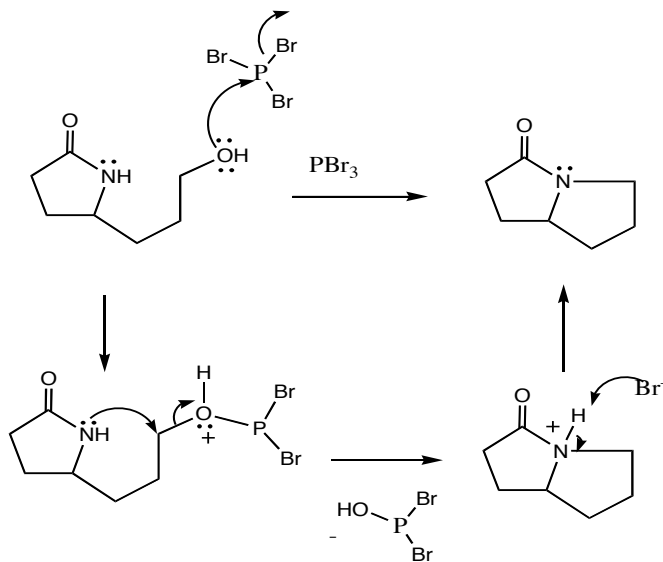
Additional Problems for practice:

1. Show how to accomplish the following synthetic conversions:

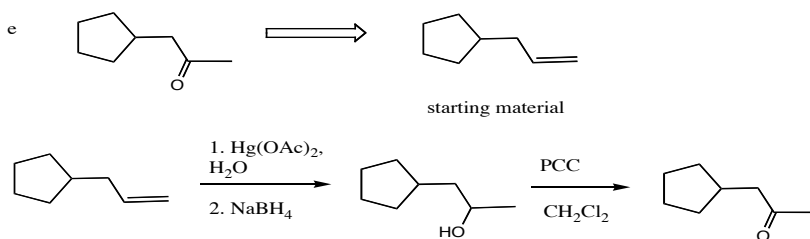
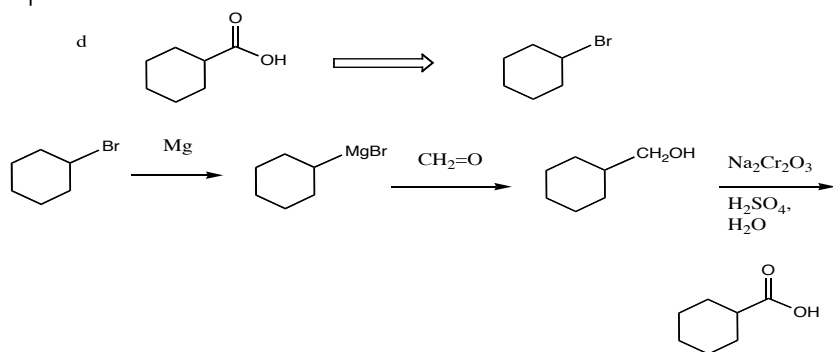
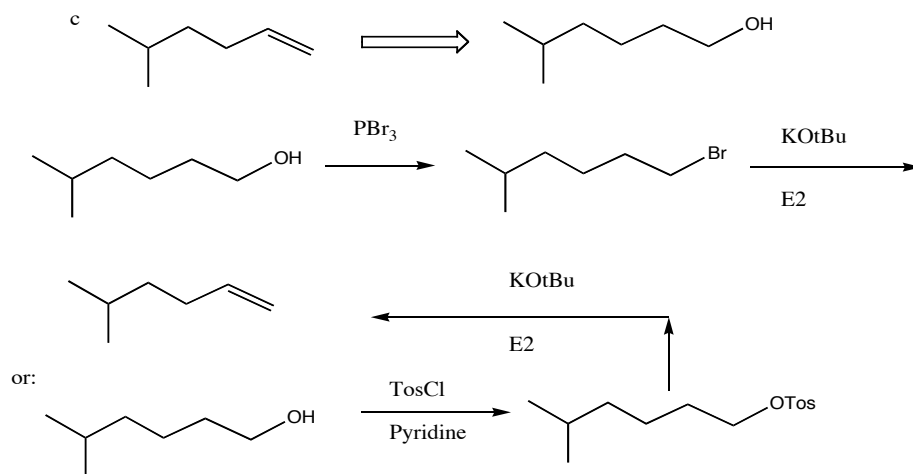
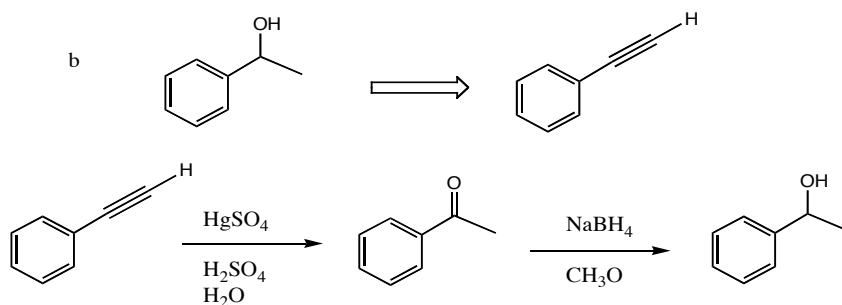
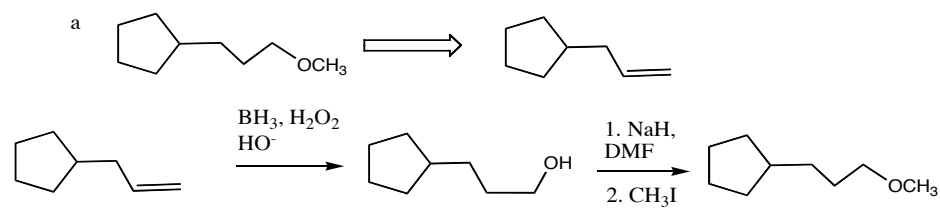




2. Propose a mechanism for the following transformation:

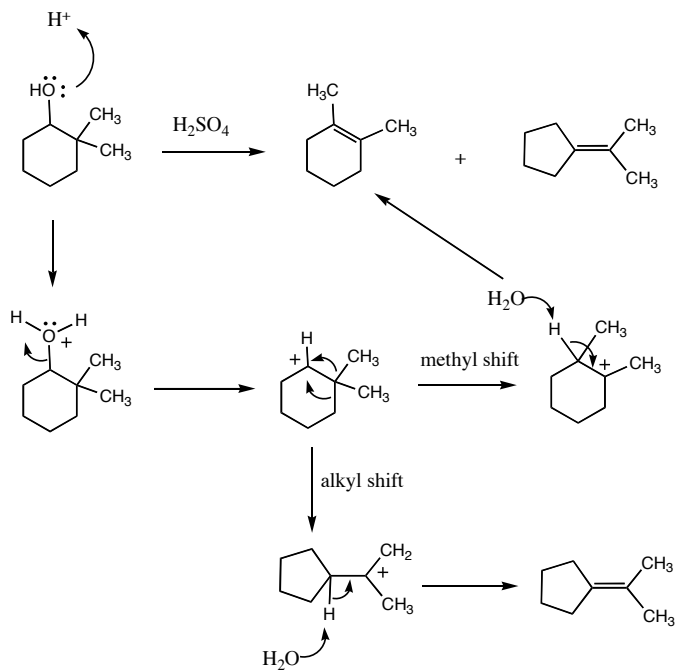


3. Design a preparation of the following molecules from the indicated starting materials:

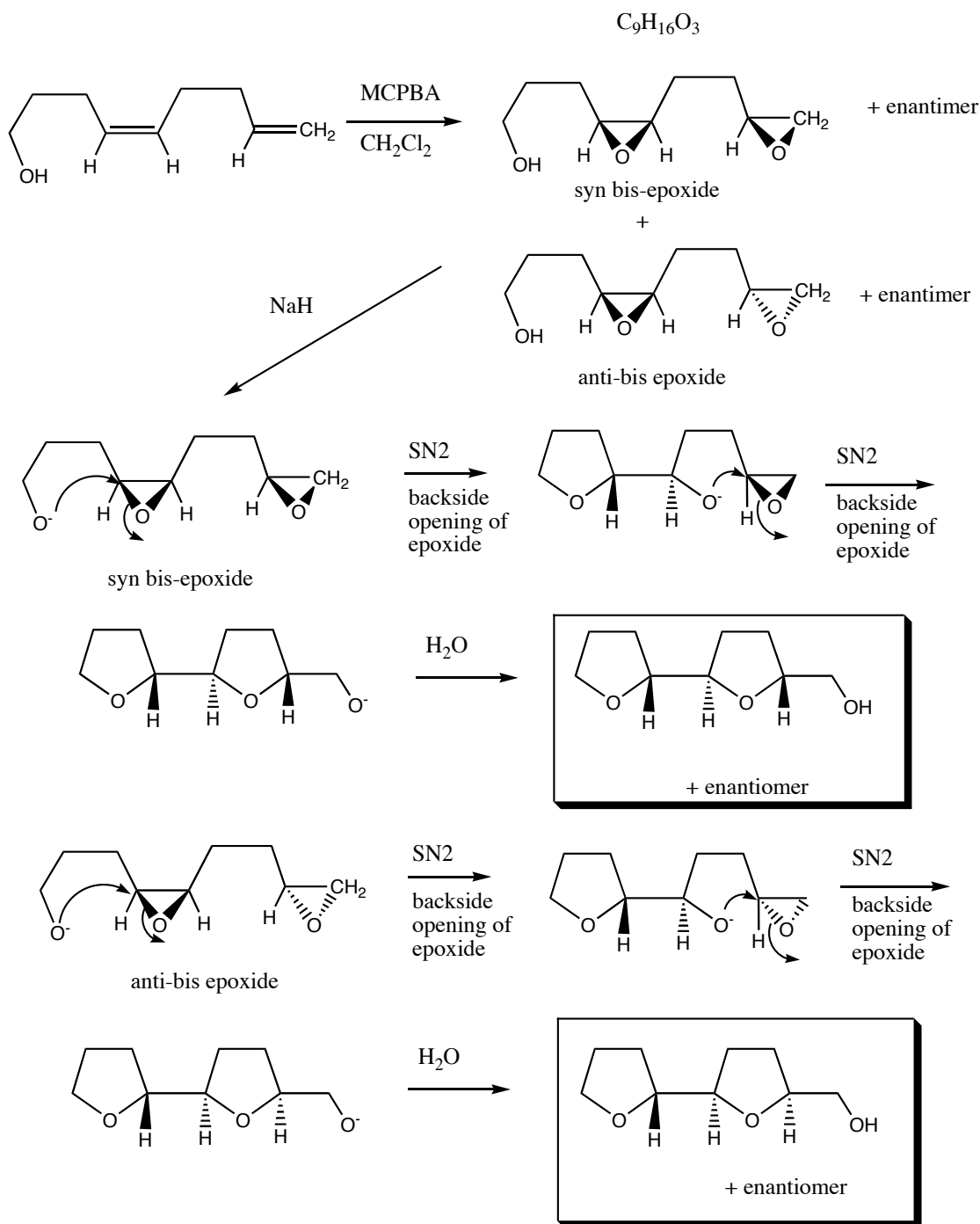


Additional Problems for practice:

4. Acid-catalyzed dehydration of 2,2-dimethylcyclohexanol yields a mixture of 1,2-dimethylcyclohexene and isopropylidenecyclopentane. Propose a mechanism to account for the formation of both products.

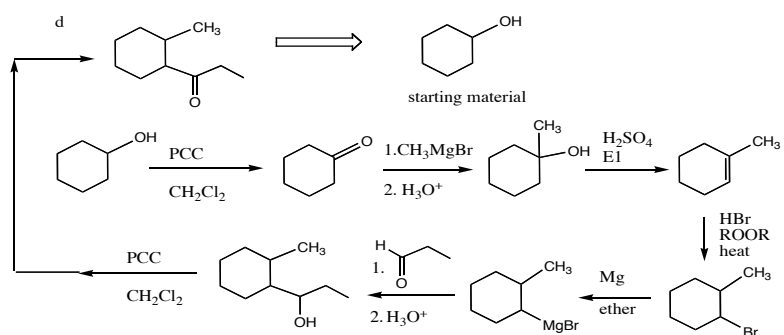
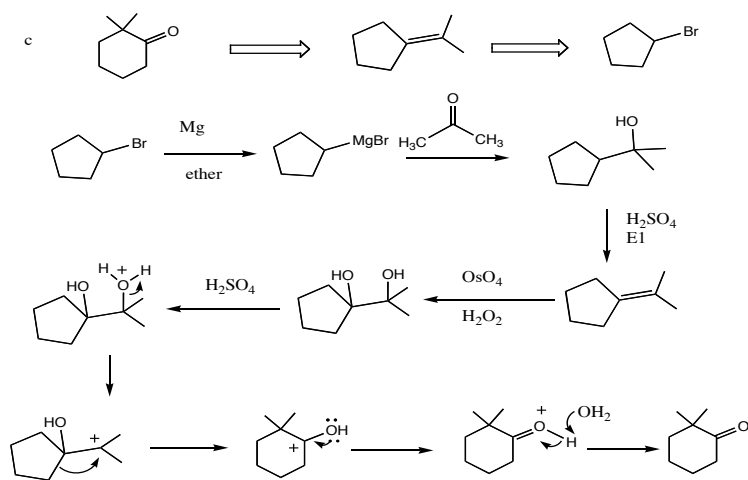
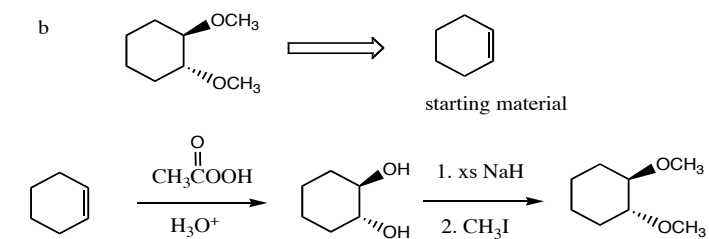
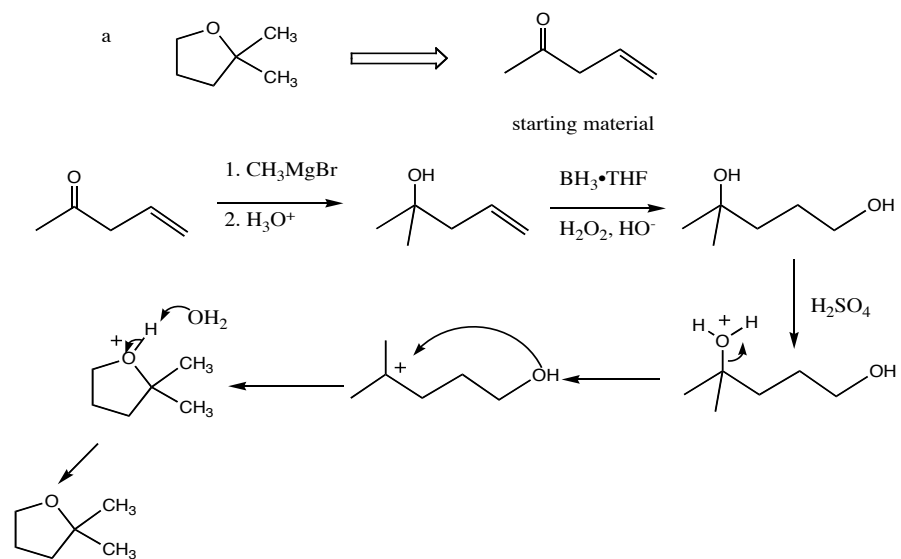


5. When the following diene is treated with MCPBA in  $\text{CH}_2\text{Cl}_2$ , an intermediate is produced with formula  $\text{C}_9\text{H}_{16}\text{O}_3$ . Treatment of this intermediate with sodium hydride leads to the formation of the observed products. Draw the structure of the intermediate, indicate the type of reaction which is taking place to produce the observed products, and rationalize the stereochemical outcome of the reaction.



because a bis-epoxide is produced, two different relative stereochemistries are possible : syn and anti. the syn bis-epoxide leads to one set of racemic products via double SN2 reaction, while the anti bis-epoxide leads to another set of racemic products via double SN2 reaction

6. Design a preparation of the following molecules from the indicated starting materials:



7. Treatment of the following diol with sulfuric acid leads to two products. Propose a mechanism which rationalizes the formation of both observed products

