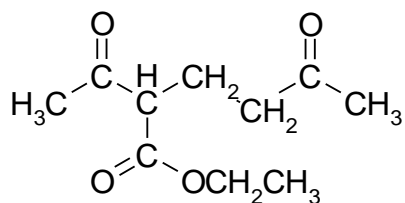




3. Show both intramolecular Claisen (Dieckmann) reactions for diethyl 3,4-dimethylheptanedioate. Include the enolates and the tetrahedral intermediates.

4. Show how to prepare the following molecule using a Michael reaction. Include the mechanism, as well as systematic names of the product and both reactants.



5. Show how to convert the product of problem #4 to 2,6-heptanedione (with acid), and the dione into 3-methyl-2-cyclohexenone (with base). Include the complete mechanisms.