1. Show all fundamental steps for the mechanism of the following reaction. Cyclohexylethyne only produces *trans* 1-cyclohexyl-1-bromo-2 bromoethene. Why is there a difference in product distribution?



1. Show the mechanisms and products of the following sequence of reactions.



1. Show four most likely isomeric products with the formula C7H13BrO for the following reaction based on known reactivity of bromine. Explain which are likely to be a major product.



1. Show the mechanism and products for the following reactions.

 

1. Show the mechanism and products for the following reaction with any relevant stereochemistry.



1. Show the mechanism and product stereochemistry for the following.



1. Which of the following pairs are resonance forms of each other and which are not? Explain.



1. Explain the following results and show the mechanism.



1. Show the mechanism of formation of two enantionmers for HBr addition. There is also an isomeric alkene that forms in low yield. Show the mechanism for formation. Show the mechanism for formation of the three products.



1. Explain what factors contribute to the stability of each resonance form below and which resonance form is more important.



1. Show the structure and the mechanism for each product.



1. Show the mechanism and product.



1. Suggest a mechanism and major product.



1. Show the mechanism and the product.



1. Show the mechanism and the product.



1. Show possible products, their mechanism of formation and which is most likely the major product (should include possibility of rearrangement).



1. Show the mechanism and the major product(s) for each reaction.



1. Show the mechanism for the following reactions.



1. The product of the following reaction has 4 13C NMR signals. Show the mechanism and the product consistent with this result.



1. Show the mechanism for the following



1. Show the mechanism of the bromine mediated (lower) reaction. Explain why a different diastereomer is formed in this case.



1. Show the mechanism and product for the following reaction.

