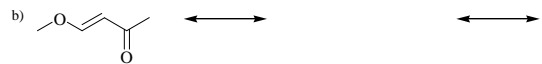
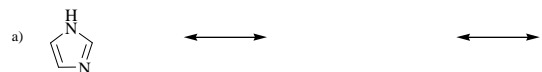
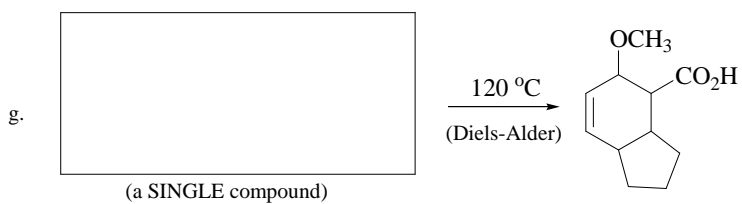
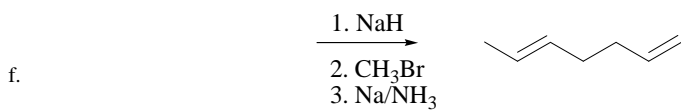
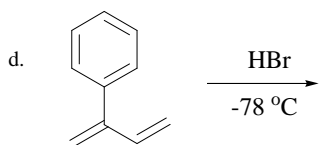
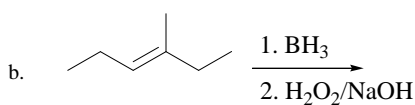
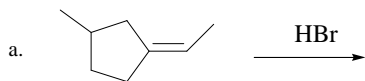


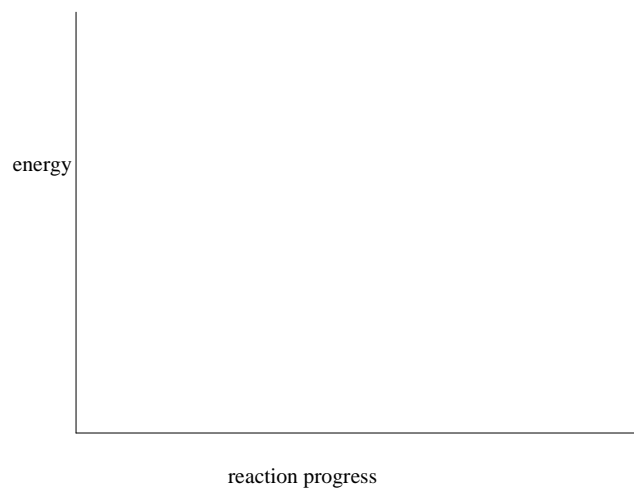
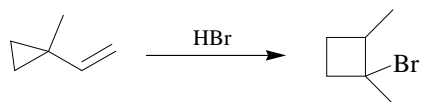
1. Draw the two next most significant resonance contributors in each case. **Of the two that you have drawn, circle the one you think is more significant.**



2. Fill in the blank with the missing reaction component:



3. Draw the reaction coordinate diagram for the following transformation. Indicate structures of reactants, products, and all intermediates. (Do not show structures of transition states.) Make sure to balance mass and charge at each point along the coordinate.



4. Explain (a) the stability of the allyl cation in terms of molecular orbital theory, and (b) how MO theory explains the fact that the allyl cation reacts at the two end carbons but not the middle.