Chemistry 255 **Class Exercise-Alkene Reactions** **Summer 2013**
Prof. Loyd Bastin

1. Myrcene, a fragrant compound found in bayberry wax, has the formula $C_{10}H_{16}$ and is known not to contain any triple bonds. (a) What is the degree of unsaturation of myrcene? When treated with excess hydrogen and a platinum catalyst, myrcene is converted to a compound (**A**) with the formula $C_{10}H_{22}$. (b) How many rings does myrcene contain? (c) How many double bonds? After hydrogenation only one product, 2,6-dimethyloctane, is obtatined. Ozonolysis of myrcene followed by treatment with dimethylsulfide yields 2 mol of formaldehyde (HCHO), 1 mol of acetone (CH_3COCH_3), and a third compound (**B**) with the formula $C_5H_6O_3$. (d) What is the structure of myrcene? (e) Of compound **B**?

2. Limonene is a compound found in orange oil and lemon oil. When limonene is treated with excess hydrogen and a platinum catalyst, the product of the reaction is 1-isopropyl-4-methylcyclohexane. When limonene is treated with ozone and then with dimethylsulfide the products of the reaction are HCHO and the following compound. Write the structural formula for limonene. Show each reaction after you have identified the structure of limonene.