Dehydration of Methylcyclohexanols: An E_1 Elimination ***Worksheet***

NAME: _____ LAB SECTION: _____

1. Draw the reaction scheme of the E_1 elimination reaction of *your* methylcyclohexanol (indicate 1-, 2- or 4-) using structures. Draw the predicted product(s) that may be generated in this reaction.

2. Fill in the data table below using the methylcyclohexanol (fill in number) you used as starting material. Fill in the name(s) of the predicted methylcyclohexene product(s).

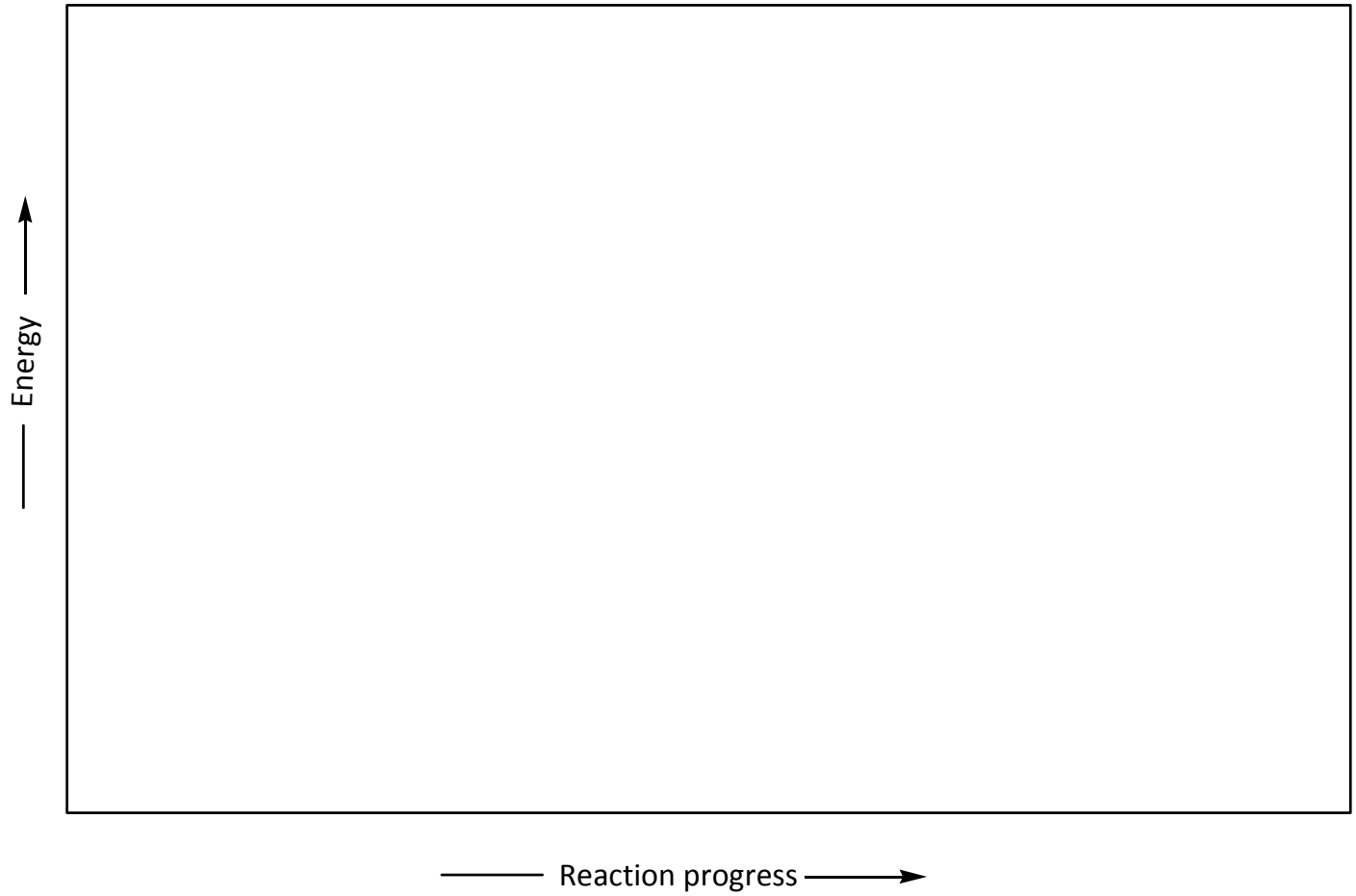
	Methylcyclohexanol	**Methylcyclohexene(s)**	
Compound			
Molecular weight			
Grams Used/Formed			
Moles used/formed			

3. Calculate the theoretical yield for your methylcyclohexene product(s) and calculate the experimental percent yield. Show proper labeling and units and all your calculations.

Theoretical Yield (in grams)

Percent Yield (%)

4. Formation of methylcyclohexenes from methylcyclohexanols with acid (i.e., the overall reaction) is endothermic. Construct a reaction energy diagram for your methylcyclohexanol and the corresponding product or products of the reaction. Be sure to include *all* reaction intermediates, transition states and products with the proper relative energies. Explicitly label all of the reaction species in the diagram. Identify the thermodynamic product(s) and the kinetic product(s) of the reaction.



5. Fill in the table below reporting your results from the Br_2 and Jones Oxidation tests. Record your observations, results and explain why you obtained the results based on the structure of the compound tested.

Br_2/CCl_4	**Methylcyclohexanol** *(fill in the name your starting material below)*	**Known Alkene** *(fill in the name of known alkene used below)*	**Product Alkene** *(fill in the name your product(s) below)*
Observation			
Result (+ or -)			
Is this what was expected? Explain			

Jones Test	**Methylcyclohexanol** *(fill in the name your starting material below)*	**Known Alkene** *(fill in the name of known alkene used below)*	**Product Alkene** *(fill in the name your product(s) below)*
Observation			
Result (+ or -)			
Is this what was expected? Explain			