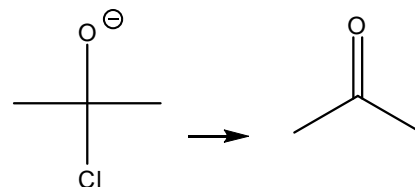
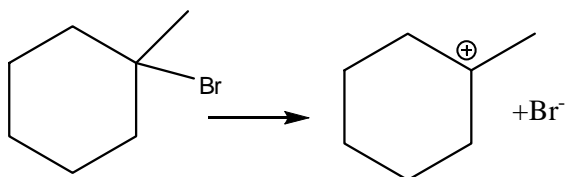
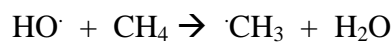


Discussion Problem Set 6:
Intro to Mechanisms

1. Use full-headed or half-headed arrows to show the movement of electron pairs in each reaction. (Problem 6.25ab)



2. Calculate ΔH° for this reaction (problem 6.28b)



3. (problem 6.12) For a reaction with $\Delta H^\circ = 10 \text{ kcal}$, decide if the following statements are true or false. If they are false, correct them.

The reaction is exothermic.

ΔG° for the reaction is positive.

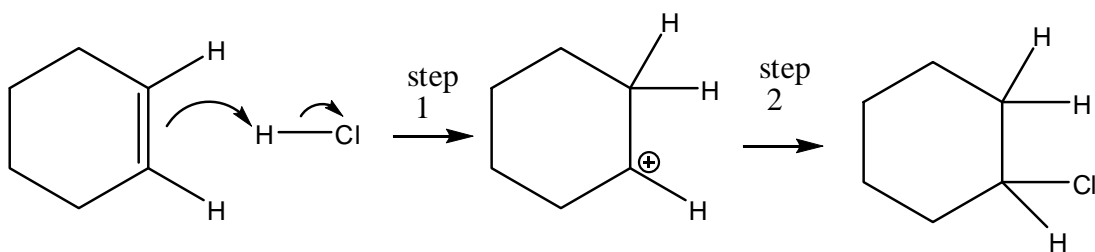
K_{eq} is greater than 1.

The bonds in the starting material are stronger than the bonds in the product.

The product is favored at equilibrium.

4. Draw an energy diagram for a two-step reaction, $A \rightarrow B \rightarrow C$, where the relative energies of these compounds is $C < A < B$, and the conversion of $B \rightarrow C$ is rate-limiting. (Problem 6.17)

5. (based on problem 6.42) Consider the following two-step reaction:



How many bonds are broken and formed in step 1? Would you predict ΔH° for step 1 to be positive or negative?

How many bonds are broken and formed in step 2? Would you predict ΔH° for step 2 to be positive or negative?

Draw the transition state structures for both steps.

Calculate ΔH° for both steps and draw an energy diagram for the whole reaction.