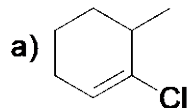


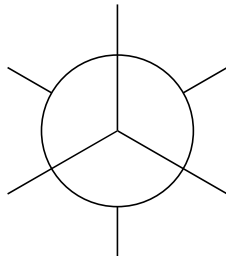
1. (4 Points, 2 each) Provide a name or a structure for each of the following compounds:



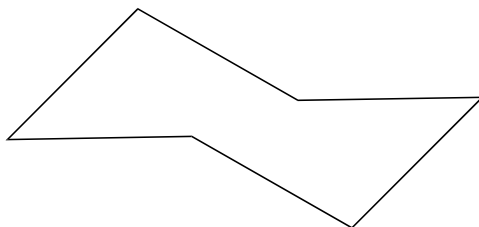
b)

cis-2-methyl-3-heptene

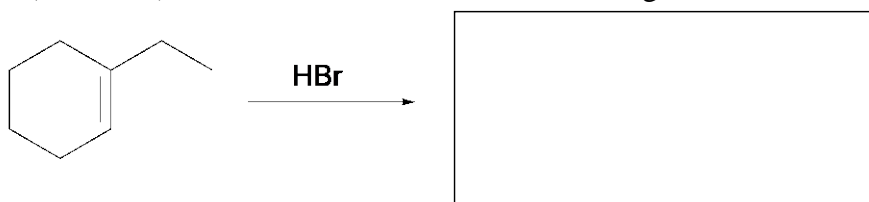
2. (3 Points) Draw a Newman projection for the most stable conformer of **hexane** looking from **C2** to **C3**.



3. (3 Points) Draw the most stable chair conformer of *cis*-1-isopropyl-3-methylcyclohexane.



4. (10 Points) Provide the answers for the following addition reaction to an alkene:



Product (3 Points)

a) provide the product in the box.

b) Draw the structure of the intermediate carbocation.



Intermediate Carbocation
(3 Points)

c) (4 Points) Draw the energy diagram including the position of reactants, products, intermediate carbocation, transition states, and activation energies assuming an **endothermic process**.