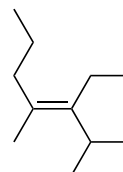
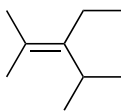
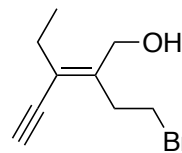
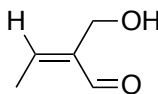
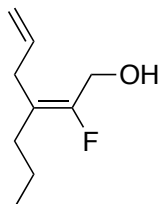
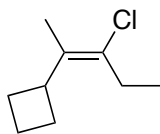


Chemistry 233
Chapter 7 Problem Set

E/Z Assignments

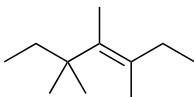
1) Assign the following alkenes with *E* or *Z* alkene geometry.



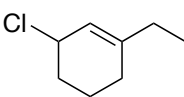
Naming Alkenes

2) Generate an IUPAC systematic name for the following compounds.

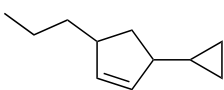
a.



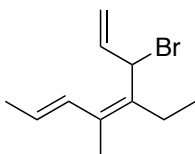
b.



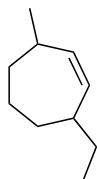
c.



d.

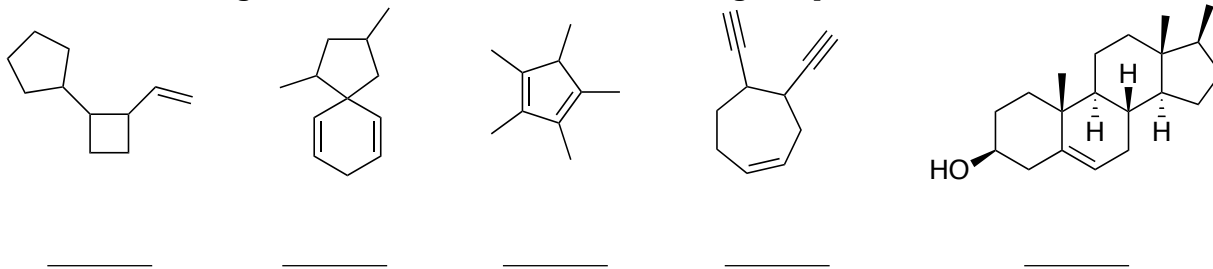


e.



Degrees of Unsaturation

3) Determine the degrees of unsaturation in the following compounds.

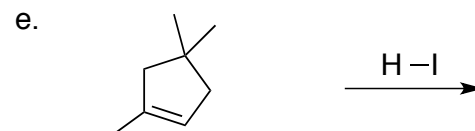
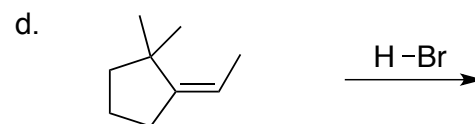
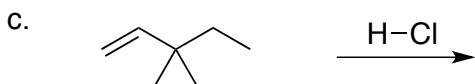
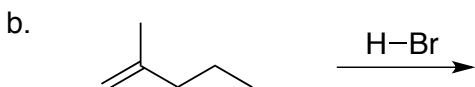
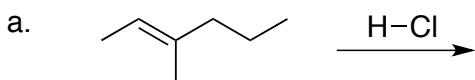


4) From the molecular formulas provided, determine the degrees of unsaturation.

C_2H_2	C_6H_6	C_8H_{18}	$C_{40}H_{56}$	C_6H_8	C_3H_4
$C_6H_{11}Br$	C_4H_7NO	$C_6Br_3Cl_3$	$C_7H_{17}N$	C_4H_8S	C_4F_6

Addition of HX To Alkenes

5) Predict the products for each of the following reactions. For now, don't worry about drawing stereochemistry in the products (we will deal with that next chapter)..



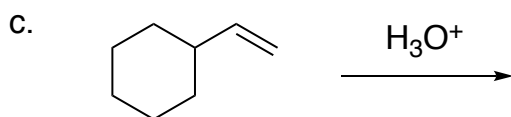
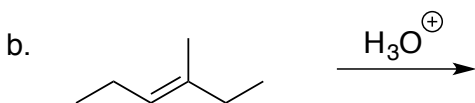
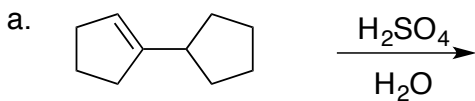
6) Show the full arrow pushing mechanism for the reaction in **part a** (above).

7) Show the full arrow pushing mechanism for the reaction in **part c** (above).

8) Draw a simple energy diagram for the reaction in **part c**. Label your starting material, product, and each intermediate.

Addition of H⁺ and H₂O to Alkenes

9) Predict the products for each of the following reactions. You do not need to include 3D (dashes/wedges) in your answers.



10) Show the full arrow pushing mechanism for the reaction in part b (above).

11) Explain why *trans*-2-hexene is a valid IUPAC name while *trans*-3-methyl-2-hexene is not.

12) Draw the structure of (3*E*,6*R*,7*Z*)-6-chloro-3,8-dimethyl-1,3,7-decatriene