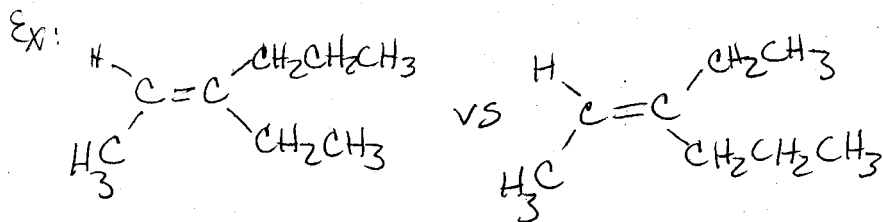


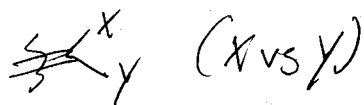
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Next week - no office hr on Friday

Recall: Stereoisomeric alkenes - E vs. Z



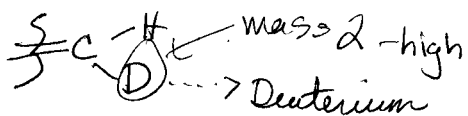
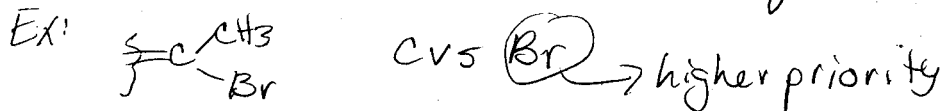
Start by assigning "priority" to substituents



Rules for assigning substituent priority

1) Atoms directly bonded to $\text{sp}^2 \text{C}$.

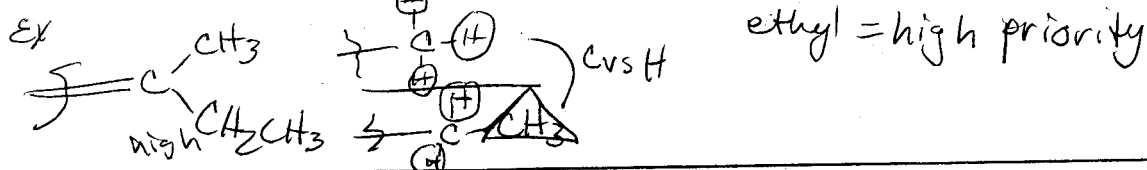
If different, higher atomic # = higher priority



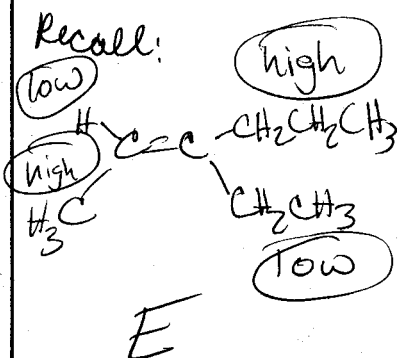
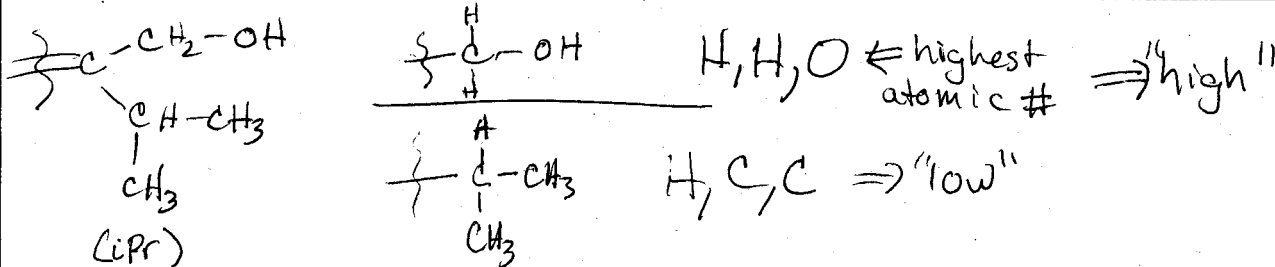
(H isotope w/ 1 neutron)

greater mass is higher priority

2) If directly bonded atoms are the same, move out to next set of bonded atoms to seek distinction.



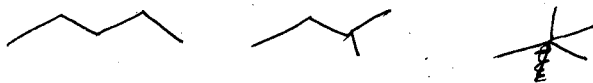
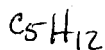
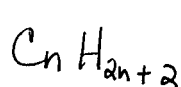
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- To check, write out the isomer & make sure you get the opposite assignment

Structural insights from molecular formula ("unsaturation number" (U))

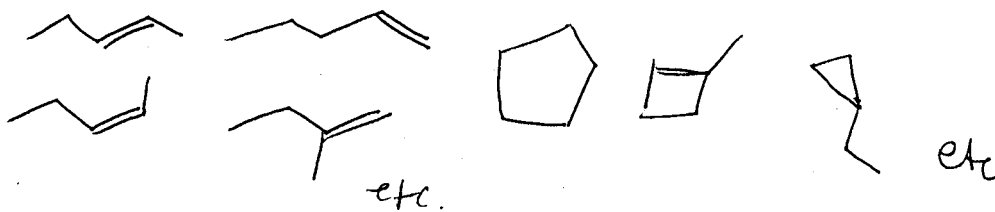
Alkane w/o rings



If hydrocarbon contains 1 ring or one double bond, $-\text{H}_2$ from molecular formula.

(i.e. one ring or one double bond corresponds to $U=1$)

Ex: C_5H_{10}



Course CH 343 Sec 003 Lecturer Sam Hellman
 Day Friday 1:20 Date 9/23/11
 Notes Taken By Alicia Phelps Total # of Pages 4

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$$U = 2$$

One double bond and one ring

OR two double bonds

OR two rings

OR one triple bond

Formula for hydrocarbons:

$$U = \frac{2C + 2 - H}{2}$$

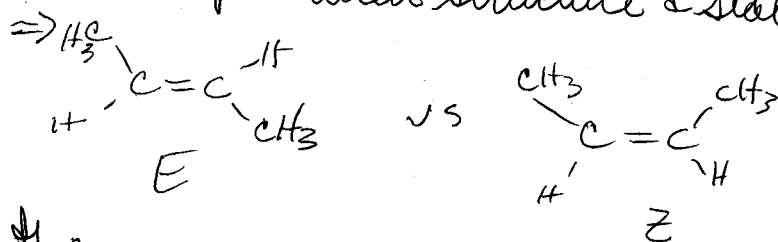
$C = \# \text{ of carbons}$
 $H = \# \text{ of hydrogens}$

Expanded formula for examples $\frac{1}{2}N + O$

$$U = \frac{2C + 2 + N - H}{2}$$

$N = \# \text{ of Nitrogens}$
 $\# \text{ of oxygens doesn't affect } U.$

Relationship between structure & stability (i.e. internal energy)



If compare isomers, examine rxns in which S.M. or products are the same - energy change informs us on stability difference

- Heat released during rxn ("exothermic")
- Heat absorbed (endothermic)

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1) Heats of formation (ΔH_f°)

→ formation of molecules from their elements

Thus,

