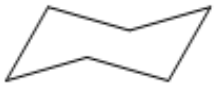
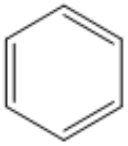
CONCEPT: IHD FROM STRUCTURAL FORMULA

A saturated molecule is any molecule that has the maximum number of hydrogens possible for its chemical structure. The rule that we use for this is _____.

- Any molecule that has less than _____ number of hydrogens is considered to be _____.

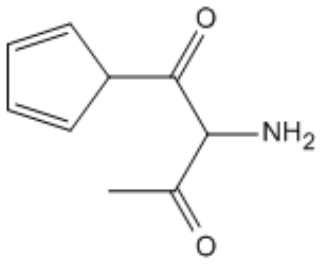
EXAMPLE: How many hydrogens must the following carbon skeletons contain to be saturated? Are they missing any?

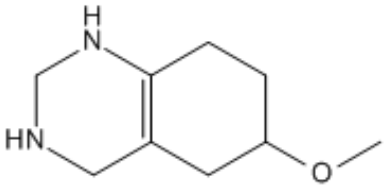
I  II  III 

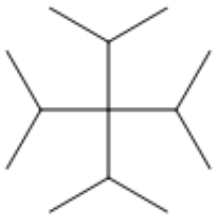
IHD rules give us the ability to quickly determine which molecules are more saturated and which molecules are less saturated with hydrogen.

- 1 IHD = Compound is missing ___ hydrogens.
  - □ Rings/Double bonds = _____
  - □ Triple Bonds = _____

EXAMPLE: What is the degree of unsaturation of the following compounds?

I 

II 

III 

CONCEPT: IHD FROM MOLECULAR FORMULA

□ Molecular Formula:

- When given only the molecular formula of the molecule use the following rules.

(Theoretical # H's – Actual # H's) / 2 = IHD, where: ● H / X = _____ ● O = _____ ● N = _____

EXAMPLE: What is the IHD for each of the following compounds?

a. C_4H_7Cl

b. C_6H_7N

c. $C_7H_{12}O_2$