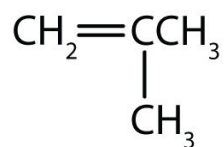


2.E: Unsaturated Hydrocarbons (Exercises)

Additional Exercises

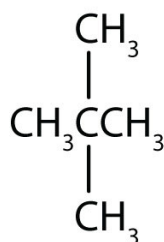
1. Classify each compound as saturated or unsaturated.



a.

b. $\text{CH}_3\text{C}\equiv\text{CCH}_3$

2. Classify each compound as saturated or unsaturated.

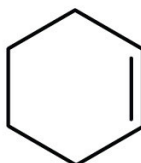


a.

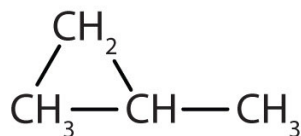


b.

3. Give the molecular formula for each compound.

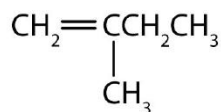


a.

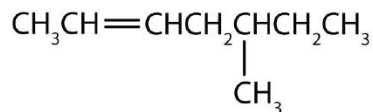


b.

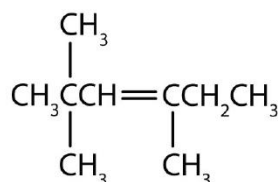
4. Name each compound according to the IUPAC system.



a.



b.



c.

5. Draw and name all the alkene cis-trans isomers corresponding to the molecular formula C_5H_{10} . (Hint: there are only two.)

6. What is wrong with each name? Draw the structure and give the correct name for each compound.

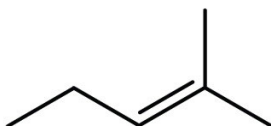
- 2-methyl-4-heptene
- 2-ethyl-2-hexene
- 2,2-dimethyl-3-pentene

7. What is wrong with each name?

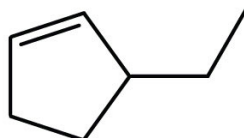
- 2-bromobenzene
- 3,3-dichlorotoluene
- 1,4-dimethylnitrobenzene

8. Following are line-angle formulas for three compounds. Draw the structure and give the name for each.

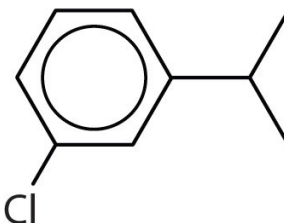
a.



b.

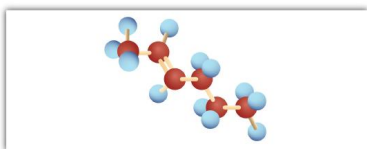


c.

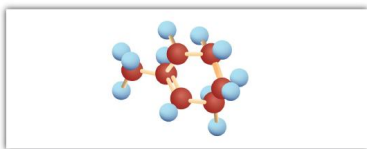


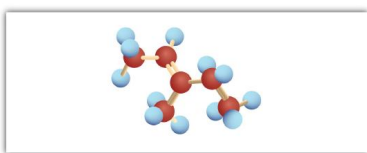
9. Following are ball-and-stick molecular models for three compounds (blue balls represent H atoms; red balls are C atoms). Provide the skeletal structure and give the name for each.

a.



b.





c.

Answers

1. a. **unsaturated**
b. **unsaturated**

3. a. **C₆H₁₀**
b. **C₄H₈**



7. a. **number not needed**
b. **can't have two groups on one carbon atom on a benzene ring**
c. **can't have a substituent on the same carbon atom as the nitro group**

9. a. ; **2-hexene**

- b. ; **1-methylcyclohexene**

- c. ; **3-methyl-2-pentene**

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