Simple Organic Compounds

CHAPTER 23.1 REVIEW

Directions: Use the structural formulas below to answer the questions.

Figure A

\[
\begin{array}{c}
\text{H} \\
\text{H-C-H} \\
\text{H} \\
\end{array}
\]

Figure B

\[
\begin{array}{c}
\text{H} \\
\text{H-C-C=C-H} \\
\text{H} \\
\end{array}
\]

Figure C

\[
\begin{array}{c}
\text{H} \\
\text{H-C-C-C-C-H} \\
\text{H} \\
\end{array}
\]

Figure D

\[
\begin{array}{c}
\text{H} \\
\text{H-C-C-C-H} \\
\text{H} \\
\end{array}
\]

Figure E

\[
\begin{array}{c}
\text{H} \\
\text{H-C=C-C-H} \\
\text{H} \\
\end{array}
\]

1. What is the chemical formula for Figure C?

2. What is the chemical formula for Figure D?

3. What is the chemical formula for the compound shown in Figure A?

4. In Figure B, what is represented by the symbol = ?

5. In Figure E, what is represented by the symbol ≡ ?

6. Which compounds are unsaturated hydrocarbons?

7. Which compounds are saturated hydrocarbons?

8. Which two formulas represent isomers of the same compound?

9. If the name of the substance in Figure C is butane, what is the name of the substance in Figure D?

10. What kind of organic compound is shown in all the formulas?
### Part A. Vocabulary Review

**Directions:** Select the term from the following list that matches each description.

<table>
<thead>
<tr>
<th>aromatic compounds</th>
<th>unsaturated hydrocarbons</th>
<th>substituted hydrocarbons</th>
</tr>
</thead>
<tbody>
<tr>
<td>saturated hydrocarbons</td>
<td>petroleum</td>
<td>proteins</td>
</tr>
<tr>
<td>lipids</td>
<td>isomers</td>
<td>monomers</td>
</tr>
<tr>
<td>carbohydrates</td>
<td>nucleic acids</td>
<td>organic compounds</td>
</tr>
<tr>
<td>hydrocarbons</td>
<td>fractional distillation</td>
<td>polymers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>polyethylene</td>
</tr>
</tbody>
</table>

1. hydrocarbons with only single bonds
2. hydrocarbons that have at least one double or triple bond
3. most compounds that contain carbon
4. large molecules made up of many smaller organic molecules that have formed new bonds and are linked together
5. organic compounds whose structural formulas contain the benzene ring
6. biological compounds that contain twice as many hydrogen atoms as oxygen atoms
7. polymers formed from amino acids
8. compounds with the same chemical formula but different molecular structures and shapes
9. polymers that control the activities and reproduction of cells
10. small molecules that form links in polymer chains
11. a mixture of thousands of carbon compounds
12. polymers used in shopping bags and plastic bottles
13. made up of only carbon and hydrogen atoms
14. process of separating petroleum into its individual compounds by boiling point
15. biological compounds that include fats and oils
16. hydrocarbons in which one or more hydrogen atoms have been replaced with atoms of other elements