

Alkenes and Alkynes Worksheet and Key

1. Draw the *line bond* structures for the following alkenes, cyclic alkenes, and alkynes:

a) alkenes that contain 4 carbon atoms (three possible)

b) cyclic alkenes that contain 4 carbon atoms (three possible)

c) alkynes that contain 4 carbon atoms (two possible, neither of them are cyclic alkynes)

2. Draw the line bond structural formula, the condensed structural formula, and the skeletal structural formula for 1-pentene.

Line bond structure:

Condensed structure:

Skeletal formula:

3. Draw the line bond structural formula, the condensed structural formula, and the skeletal structural formula for 2-pentene.

Line bond structure:

Condensed structure:

Skeletal formula:

4. Draw the line bond structural formula, the condensed structural formula, and the skeletal structural formula for 2-methyl-3-heptene.

Line bond structure:

Condensed structure:

Skeletal formula:

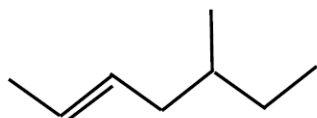
5. Draw the line bond structural formula, the condensed structural formula, and the skeletal structural formula for 3,3-diethyl-1-octyne.

Line bond structure:

Condensed structure:

Skeletal formula:

6. What is the systemic name for the following structure?

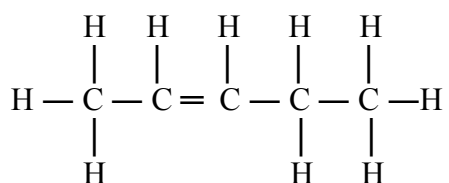


7. What is the systemic name for the following structure?



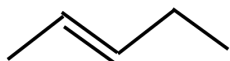
3. Draw the line bond structural formula, the condensed structural formula, and the skeletal structural formula for 2-pentene.

Line bond structure:



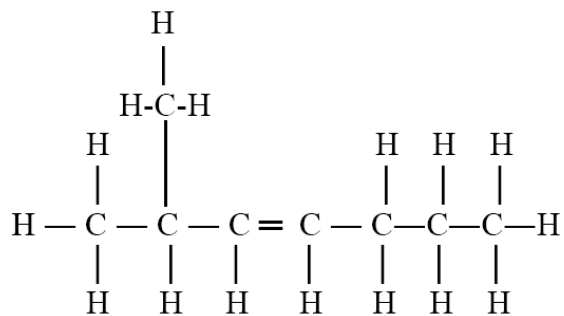
Condensed structure: $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_3$

Skeletal structure:

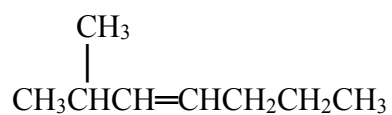


4. Draw the line bond structure, the condensed structural formula, and the skeletal structural formula for 2-methyl-3-heptene.

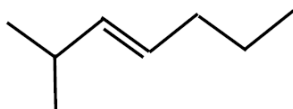
Line bond structure:



Condensed structure:

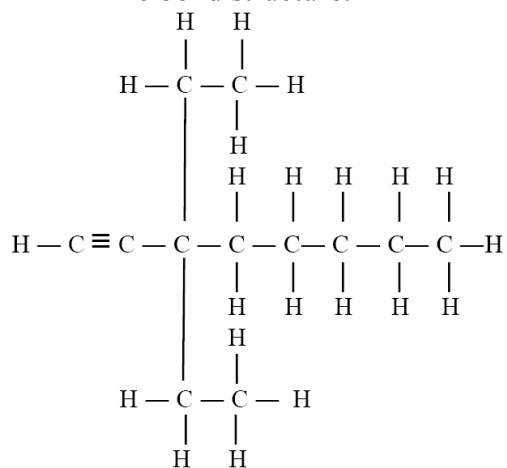


Skeletal structure:

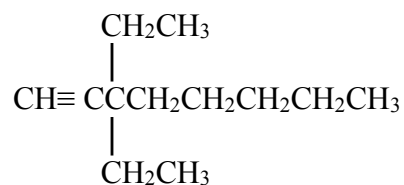


5. Draw the line bond structural formula, the condensed structural formula, and the skeletal structural formula for 3,3-diethyl-1-octyne.

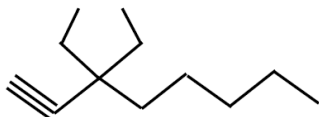
Line bond structure:



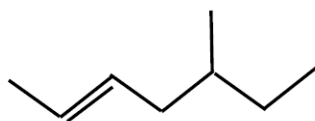
Condensed structure:



Skeletal structure:



6. What is the systemic name for the following structure?



5-methyl-2-heptene

7. What is the systemic name for the following structure?



2-pentyne