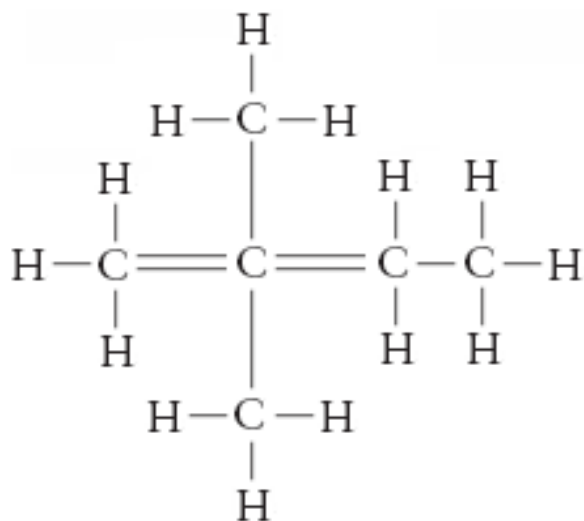
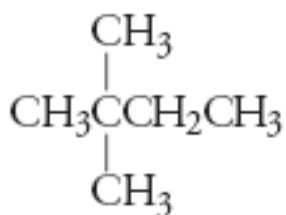


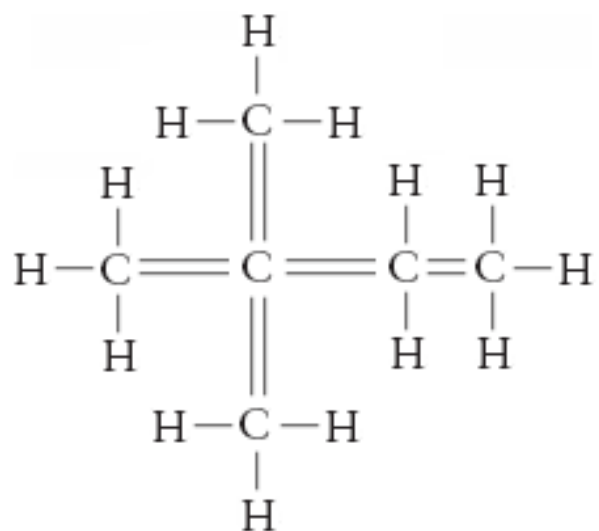
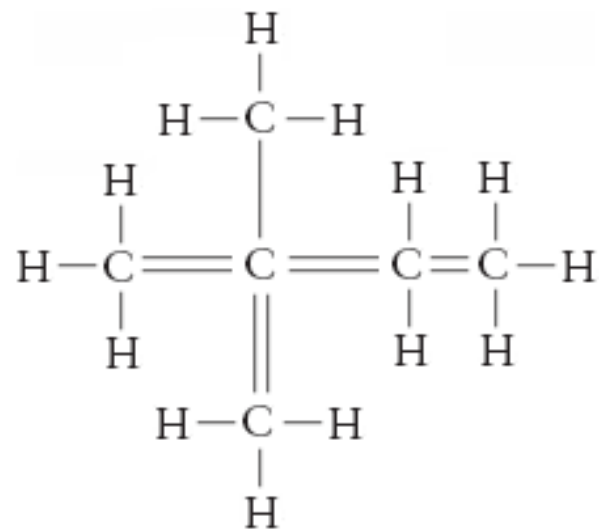
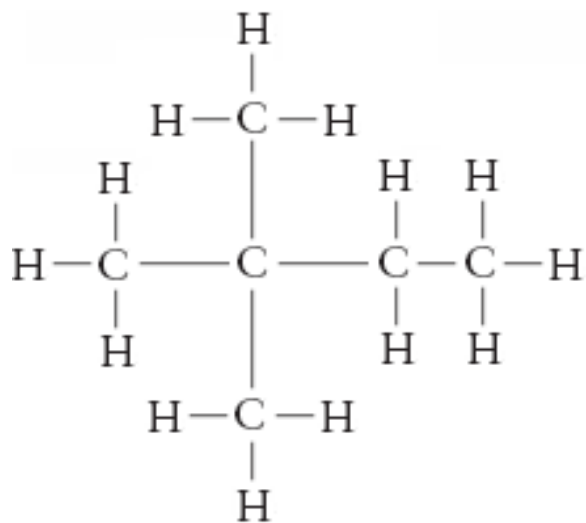
## Organic

**Start Date:** 11 Jun 2008 at 08:00 AM**Due Date:** 19 Jun 2008 at 01:00 AM**Student Access after Due Date:** Yes. View Only**Graded:** Yes

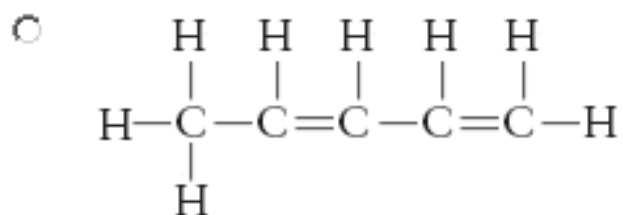
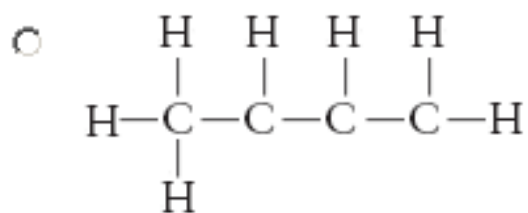
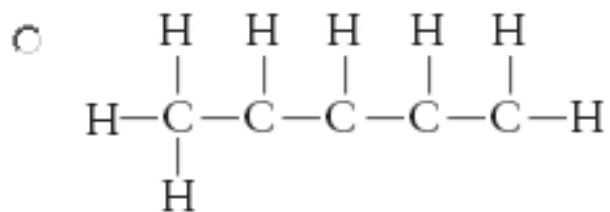
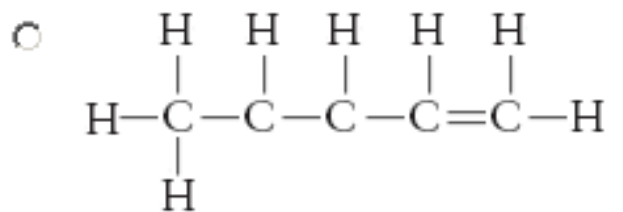
## EOC Problem 4.2

Select the line-bond structure of each molecule.





None of the above

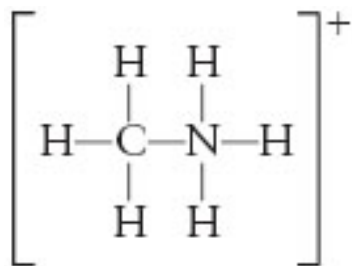


None of the above

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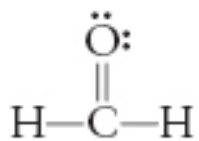
## EOC Problem 4.16

Select all polar covalent bonds in the following:  $\text{CH}_3\text{NH}_3^+$ .



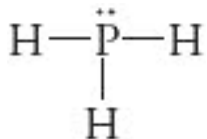
- C-H
- N-H
- C-N
- none

Select all polar covalent bonds in the following:  $\text{CH}_2\text{O}$ .



- C-H
- C=O
- none
- H-O

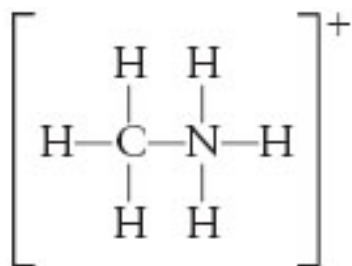
Select all polar covalent bonds in the following:  $\text{PH}_3$ .



- H-H
- P-P
- none
- P-H

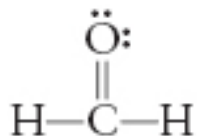
# EOC Problem 4.18

Specify the shape around nitrogen atom in ion  $\text{CH}_3\text{NH}_3^+$ .



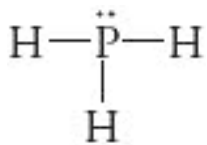
- linear
- bent
- tetrahedral
- trigonal planar
- pyramidal

Specify the shape around carbon atom in  $\text{CH}_2\text{O}$ .



- linear
- trigonal planar
- tetrahedral
- bent
- pyramidal

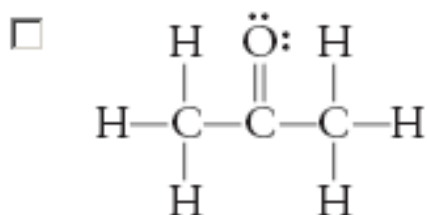
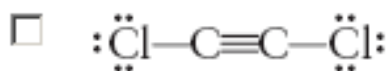
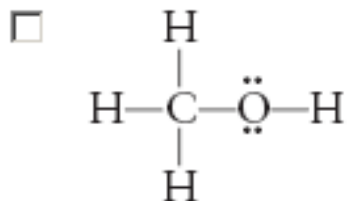
Specify the shape around chlorine atom in  $\text{ClO}_2^-$ .



- trigonal planar  
 tetrahedral  
 pyramidal  
 linear  
 bent

## EOC Problem 4.20

Which of the molecules are polar?



- None of the above

## EOC Problem 4.24

Do hydrogen bonds form between methanol ( $\text{CH}_3\text{OH}$ ) molecules?

- yes, because methanol has a hydrogen attached to an oxygen atom
  - no, because methanol does not contain fluorine or nitrogen atoms
  - may vary depending on the temperature
- 
- 

## EOC Problem 4.28

Which of the molecules can form a strong hydrogen bond with a water molecule?

1.  $\text{CH}_3\text{OH}$
2.  $\text{CH}_2=\text{CHCH}_3$
3.  $\text{CH}_3\text{CH}_2\text{SH}$
4.  $\text{CH}_3\text{OCH}_3$

- 2 and 4
  - 1, 2, 3, 4
  - 1 and 3
  - only 1
- 
-

## EOC Problem 4.30b

A protein contains the following groups. Which of the pairs interact **primarily** through London forces?

1.  $-\text{CH}_2\text{OH}$  and  $\text{HOCH}_2-$
2.  $-\text{CH}_2\text{COO}^-$  and  $+\text{NH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2-$
3.  $-\text{CH}_2\text{COOH}$  and  $+\text{NH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2-$
4.  $-\text{CH}_2\text{CH}_3$  and  $\text{CH}_3-$

- 1, 2, 3, 4
- only 4
- 2 and 4
- 1 and 3
- 
- 

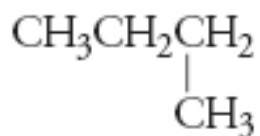
## EOC Problem 4.36

Which has the higher boiling point,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$  or  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ ? Explain.

- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ . The larger a molecule is, the higher its boiling point will be.
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ . It contains less hydrogen atoms.
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ . Carbon to hydrogen ratio is higher in this molecule.
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$ . The smaller a molecule is, the higher its boiling point will be.
- 
- 

## EOC Problem 4.42a

Find and name the parent chain, then give the complete IUPAC name for the molecule.



The parent chain is:

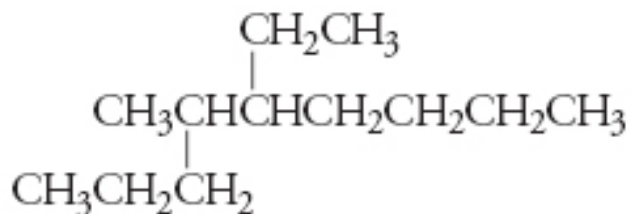
- propane
- pentane
- butane
- ethane

The complete IUPAC name is:

- ethylethane
- 1-methylpropane
- butane
- methylpropane

## EOC Problem 4.42b

Find and name the parent chain, then give the complete IUPAC name for the molecule.





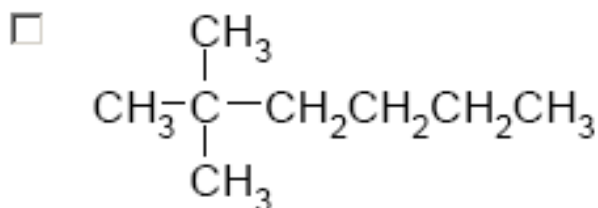
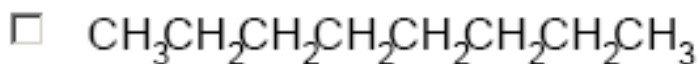
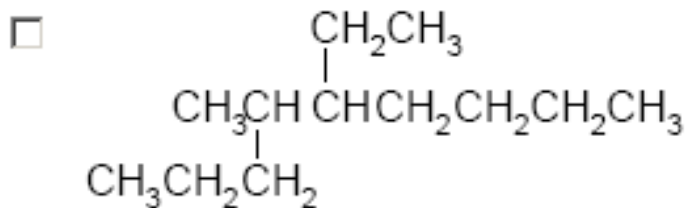
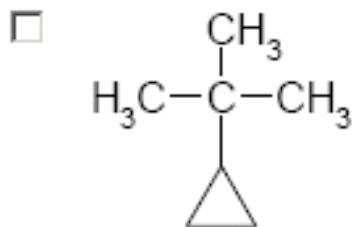
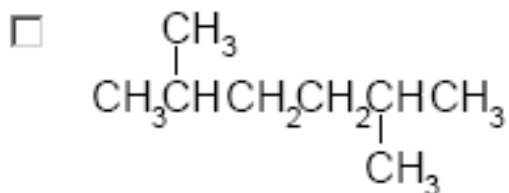
The complete IUPAC name is:

- 4-ethyl-2-methyloctane
- 3-butyl-5-methylhexane
- 4-methylisononane
- 2-methyl-4-ethyloctane

## EOC Problem 4.44

Select six constitutional isomers with the formula  $C_8H_{18}$ .

- $$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3-\text{C}-\text{CH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$$
- $$\begin{array}{c} \text{CH}_3\text{CHCHCH}_3 \\ | \quad | \\ \text{H}_3\text{C} \quad \text{CH}_3 \end{array}$$
- $$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3\text{CHCHCH}_2\text{CH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$$
- $$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3-\text{C}-\text{CH}_3 \\ | \\ \text{CH}_3-\text{C}-\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$$
- $$\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3\text{CHCH}_2\text{CHCH}_2\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$$



Select the correct names for six constitutional isomers with the formula  $\text{C}_8\text{H}_{18}$ .

- 2,3 - dimethylheptane
- heptane
- nonane
- octane
- 2,2 - dimethylhexane
- 2,2,3,4 - tetramethylpentane
- 2,2,3,3 - tetramethylbutane
- 2,3 - dimethylhexane
- 2,5 - dimethylhexane
- 2,4 - dimethylhexane

## EOC Problem 4.48

Which are constitutional isomers?  
hexane and 3-methylpentane

- Constitutional isomers
- Not constitutional isomers

hexane and 2,3-dimethylpentane

- Constitutional isomers
- Not constitutional isomers

hexane and 2,3-dimethylbutane

- Not constitutional isomers
- Constitutional isomers

hexane and cyclohexane

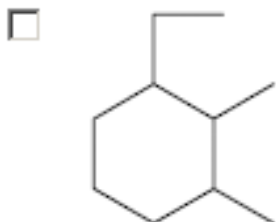
- Not constitutional isomers
- Constitutional isomers

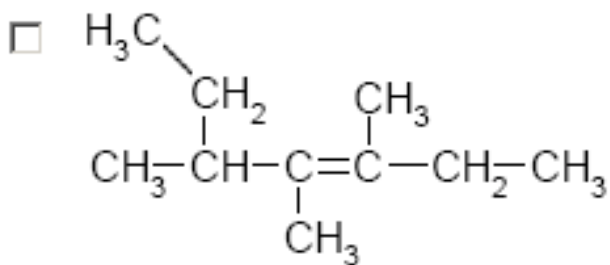
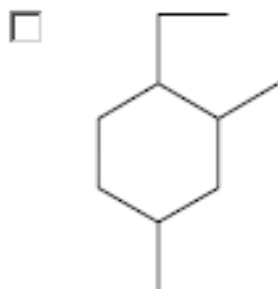
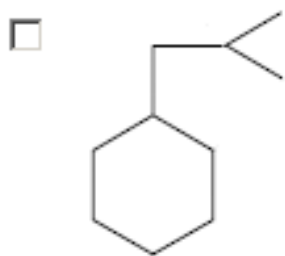
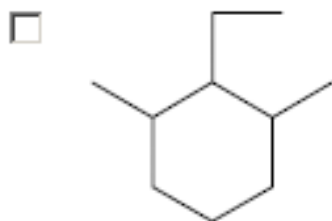
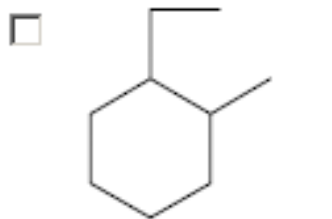
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## EOC Problem 4.54

Select three ethyldimethylcyclohexane constitutional isomers.



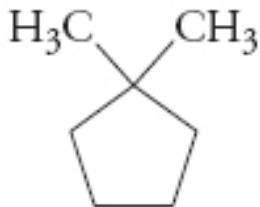


Select the correct names for three ethyldimethylcyclohexane constitutional isomers.

- 2-ethyl-1,3-dimethyl-cyclohexane
- 1-ethyl-2,4-dimethyl-cyclohexane
- 1-ethyl-2-methyl-cyclohexane
- (methylpropyl)-cyclohexane
- 2-ethyl-3,4-dimethyl-3-hexene
- 1-ethyl-2,3-dimethyl-cyclohexane

## EOC Problem 4.56a

Give the correct IUPAC name for the molecule.

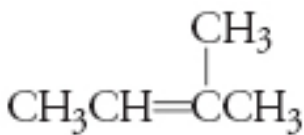


- 1-methylcyclohexane
- isoheptane
- dimethylpentane-1,1
- 1,1-dimethylcyclopentane

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## EOC Problem 4.66a

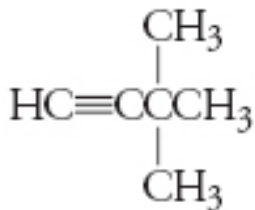
Give the IUPAC name of the molecule.



- isopropylethylene
- 1,3-dimethyl-1-butene
- 2-methyl-2-butene
- 3-methyl-1-butene

## EOC Problem 4.66b

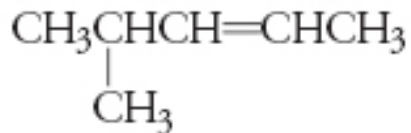
Give the IUPAC name of the molecule.



- tert*-butylacetylen
  - 2,2-dimethyl-3-propyne
  - 3,3-dimethyl-1-butyne
  - dimethylbutylene
- 

## EOC Problem 4.66c

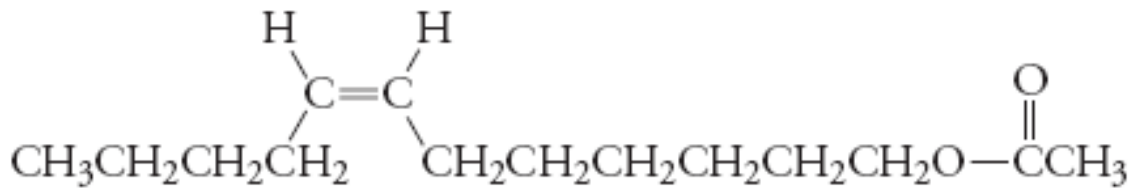
Give the IUPAC name of the molecule.



- 4-methyl-2-pentene
  - 2-methyl-3-pentene
  - ethylisobutylene
  - 1-isopropyl-1-propene
- 

## EOC Problem 4.78

This molecule is an elephant sex pheromone.



Which functional groups are present in this molecule?

- ether
- ketone
- carboxylic acid
- alkene
- aldehyde
- alkyne
- ester
- alcohol

Which geometric isomer is present?

- Trans*. The two groups are on the opposite sides of the double bond.
- Trans*. The two groups are on the same side of the double bond.
- Cis*. The two groups are on the opposite sides of the double bond.
- Cis*. The two groups are on the same side of the double bond.

Is the molecule saturated or unsaturated?

- Unsaturated
- Saturated