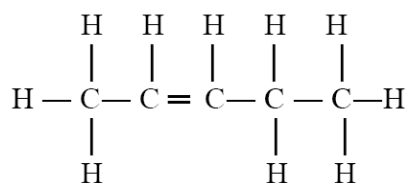


## Naming and Drawing Alkenes Worksheet and Key

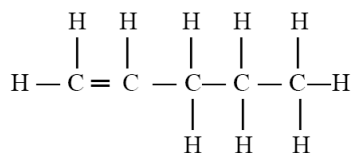
1) Draw and name the *cis* and *trans* condensed structure of:



<i>cis</i> condensed structure:	<i>trans</i> condensed structure:
name:	name:

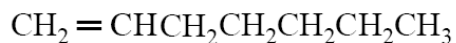
2. Name the following alkenes (include *cis*- or *trans*- for the alkenes that when appropriate)

a)



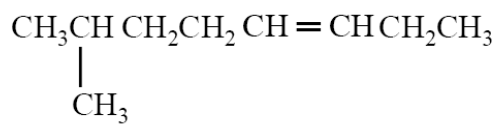
Name: \_\_\_\_\_

b)



Name: \_\_\_\_\_

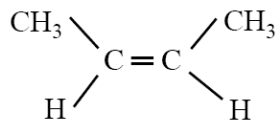
c)



Name: \_\_\_\_\_

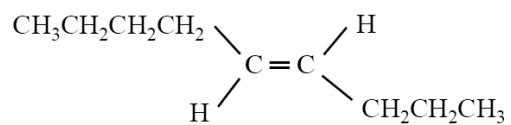
Be careful to correctly identify carbon #1.....

d)



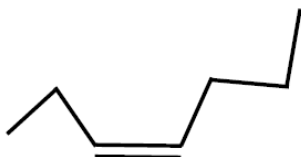
Name: \_\_\_\_\_

e)



Name: \_\_\_\_\_

f)



Name: \_\_\_\_\_

3. Draw the line bond, condensed, and skeletal structure of the following alkenes.

a) 1-hexene

line-bond structure	condensed structure	skeletal structure

b) 2-methyl-4-isopropyl-1-nonene

line-bond structure	condensed structure	skeletal structure

c) cis-2-hexene

line-bond structure	condensed structure	skeletal structure

d) trans-2-pentene

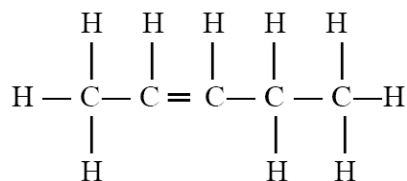
line-bond structure	condensed structure	skeletal structure

e) cis-2-methyl-3-hexene

line-bond structure	condensed structure	skeletal structure

## Key

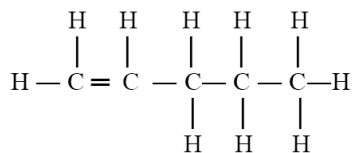
1) Draw and name the **cis** and **trans** condensed structure of:



<p><b>cis</b> condensed structure:</p> $  \begin{array}{ccc}  \text{CH}_3 & & \text{CH}_2\text{CH}_3 \\  & \diagdown & / \\  & \text{C} = \text{C} & \\  & / & \diagdown \\  \text{H} & & \text{H}  \end{array}  $	<p><b>trans</b> condensed structure:</p> $  \begin{array}{ccc}  \text{CH}_3 & & \text{H} \\  & \diagdown & / \\  & \text{C} = \text{C} & \\  & / & \diagdown \\  \text{H} & & \text{CH}_2\text{CH}_3  \end{array}  $
name: <i>cis</i> -2-pentene	name: <i>trans</i> -2-pentene

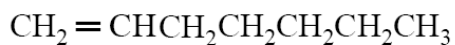
2. Name the following alkenes (include cis- or trans- for the alkenes that when appropriate)

a)



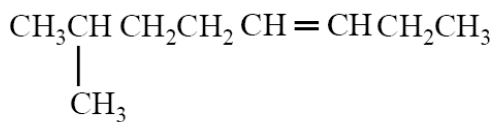
Name: 1-pentene

b)



Name: 1-heptene

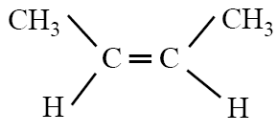
c)



Name: 7-methyl-3-octene

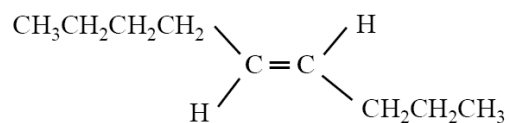
Note: Carbon #1 is the carbon nearest to the double bond

d)



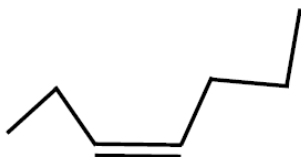
Name: cis-2-butene

e)



Name: trans-4-nonene

f)



Name: cis-3-heptene

3. Draw the line bond, condensed, and skeletal structure of the following alkenes.

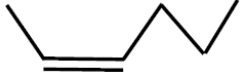
a) 1-hexene

line-bond structure	condensed structure	skeletal structure
$\begin{array}{cccccccc} & \text{H} & \text{H} & & \text{H} & \text{H} & \text{H} & \text{H} \\ &   &   & &   &   &   &   \\ \text{H} & - \text{C} = & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{H} \\ & & & &   &   &   &   \\ & & & & \text{H} & \text{H} & \text{H} & \text{H} \end{array}$	$\text{CH}_2 = \text{CHCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$	

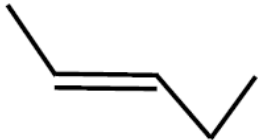
b) 2-methyl-4-isopropyl-1-nonene

line-bond structure	condensed structure	skeletal structure
$\begin{array}{cccccccccccc} & & \text{H} & & & & & & & & & & & \\ & &   & & & & & & & & & & & \\ & \text{H} & - \text{C} & - \text{H} & & & & & & & & & & \\ &   &   & & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \\ & \text{H} & - \text{C} = & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{H} \\ & & & &   &   &   &   &   &   &   &   &   \\ & & & & \text{H} & & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \\ & & & &   & &   & & & & & & & \\ & & & & \text{H} & & \text{H} & & & & & & & \\ & & & & \text{H} & - & \text{C} & - & \text{C} & - & \text{H} \\ & & & &   &   &   \\ & & & & \text{H} & \text{H} & \text{H} \end{array}$	$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_2 = \text{C} \text{CH}_2\text{CHCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3 \\   \\ \text{CH}_3\text{CHCH}_3 \end{array}$	<p>Note: There are several correct ways to draw many of these skeletal structures.</p>

c) *cis*-2-hexene

line-bond structure	condensed structure	skeletal structure
$  \begin{array}{cccccc}  & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \\  &   &   &   &   &   \\  \text{H} & - \text{C} & - \text{C} = & \text{C} & - \text{C} & - \text{C} - \text{H} \\  &   & &   &   &   \\  & \text{H} & & \text{H} & \text{H} & \text{H}  \end{array}  $ <p>Note: <i>cis/trans</i> is not displayed in line-bond structures (only displayed in condensed and skeletal structures).</p>	$  \begin{array}{c}  \text{CH}_3 \quad \quad \quad \text{CH}_2\text{CH}_2\text{CH}_3 \\  \quad \quad \quad \diagdown \quad \diagup \\  \quad \quad \quad \text{C} = \text{C} \\  \quad \quad \quad \diagup \quad \diagdown \\  \text{H} \quad \quad \quad \text{H}  \end{array}  $	

d) *trans*-2-pentene

line-bond structure	condensed structure	skeletal structure
$  \begin{array}{cccccc}  & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \\  &   &   &   &   &   \\  \text{H} & - \text{C} & - \text{C} = & \text{C} & - \text{C} & - \text{H} \\  &   & &   &   &   \\  & \text{H} & & \text{H} & \text{H} &   \end{array}  $ <p>Note: <i>cis/trans</i> is not displayed in line-bond structures (only displayed in condensed and skeletal structures).</p>	$  \begin{array}{c}  \text{CH}_3 \quad \quad \quad \text{H} \\  \quad \quad \quad \diagdown \quad \diagup \\  \quad \quad \quad \text{C} = \text{C} \\  \quad \quad \quad \diagup \quad \diagdown \\  \text{H} \quad \quad \quad \text{CH}_2\text{CH}_3  \end{array}  $	

e) *cis*-2-methyl-3-hexene

line-bond structure	condensed structure	skeletal structure
$  \begin{array}{cccccc}  & & \text{H} & & & \\  & &   & & & \\  & \text{H} & - \text{C} & - \text{H} & & \\  &   &   &   &   &   \\  \text{H} & - \text{C} & - \text{C} & - \text{C} = & \text{C} & - \text{C} - \text{H} \\  &   &   & &   &   \\  & \text{H} & \text{H} & & \text{H} & \text{H}  \end{array}  $	$  \begin{array}{c}  \text{CH}_3 \\    \\  \text{CH}_3\text{CH} \quad \quad \quad \text{CH}_2\text{CH}_3 \\  \quad \quad \quad \diagdown \quad \diagup \\  \quad \quad \quad \text{C} = \text{C} \\  \quad \quad \quad \diagup \quad \diagdown \\  \text{H} \quad \quad \quad \text{H}  \end{array}  $	