

Alkanes, Alkenes, Alkynes and Cyclic Hydrocarbons - Worksheet

(Please note: **highlighted** questions should be completed; other questions are for additional practice if required)

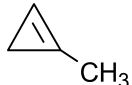
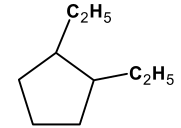
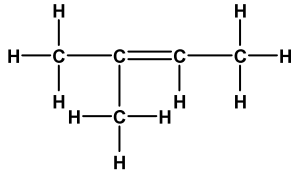
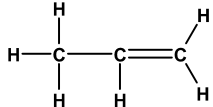
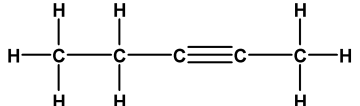
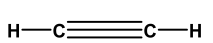
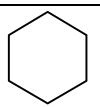
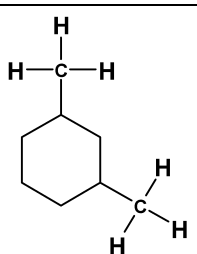
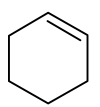
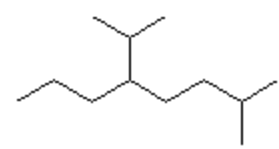
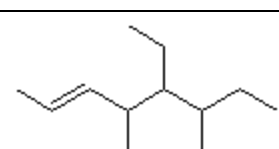
Name or draw the following compounds:


	Chemical structure	IUPAC Name
1	$\begin{array}{c} \text{Cl} \\ \\ \text{H}_3\text{C}-\text{CH}_2-\text{CH}-\text{CH}_3 \end{array}$	
2	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_2 \\ \\ \text{H}_3\text{C}-\text{CH}-\text{CH}_2-\text{HC}-\text{CH}_3 \\ \\ \text{CH}_2 \\ \\ \text{CH}_3 \end{array}$	
3	$\begin{array}{c} \text{Br} \qquad \qquad \text{Br} \qquad \qquad \text{Cl} \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{H}_3\text{C}-\text{CH}-\text{CH}_2-\text{CH}-\text{CH}-\text{C}-\text{CH}_3 \\ \qquad \qquad \qquad \qquad \qquad \\ \qquad \qquad \qquad \qquad \qquad \text{CH}_3 \qquad \qquad \text{Cl} \end{array}$	
4	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_2 \\ \\ \text{H}_3\text{C}-\text{C}-\text{CH}_2-\text{CH}-\text{CH}_2-\text{CH}_2 \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{CH}_2 \qquad \qquad \qquad \text{NH}_2 \qquad \qquad \qquad \text{NO}_2 \\ \\ \text{CH}_3 \end{array}$	
5	$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{CH}-\text{CH}_2-\text{C}-\text{CH}_2-\text{CH}_3 \\ \qquad \qquad \qquad \\ \text{CH}_3 \qquad \qquad \qquad \text{CH}_3 \end{array}$	
6	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_2 \\ \\ \text{HC}-\text{CH}_2-\text{CH}-\text{CH}-\text{CH}_3 \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{CH}_2 \qquad \qquad \qquad \text{Cl} \qquad \qquad \qquad \text{Cl} \\ \\ \text{Cl}-\text{CH} \\ \\ \text{CH}_3 \end{array}$	
7	$\begin{array}{c} \text{NH}_2 \qquad \qquad \text{NH}_2 \\ \qquad \qquad \qquad \\ \text{H}_3\text{C}-\text{C}-\text{CH}_2-\text{C}-\text{CH}_3 \\ \qquad \qquad \qquad \\ \text{NO}_2 \qquad \qquad \text{NO}_2 \end{array}$	
8	$\begin{array}{c} \text{Cl} \qquad \qquad \text{Cl} \qquad \qquad \text{Cl} \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{Cl}-\text{C}-\text{CH}_2-\text{C}-\text{CH}_2-\text{C}-\text{CH}_3 \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{Cl} \qquad \qquad \qquad \text{Cl} \qquad \qquad \qquad \text{Cl} \end{array}$	
9	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_2 \\ \\ \text{H}_3\text{C}-\text{C}-\text{CH}_2-\text{CH}-\text{CH}_3 \\ \qquad \qquad \qquad \\ \text{CH}_3 \qquad \qquad \qquad \text{Br} \end{array}$	

10	$\begin{array}{c} \text{Br} \\ \\ \text{H}_3\text{C}-\text{CH}_2-\text{C}-\text{CH}_2-\text{CH}_3 \\ \\ \text{Cl} \end{array}$	
11	$\begin{array}{c} \text{NO}_2 \qquad \text{Br} \\ \qquad \qquad \\ \text{H}_3\text{C}-\text{CH}-\text{CH}_2-\text{CH}_2 \end{array}$	

12		2,3-dichloropentane
13		3-bromo-2-methylheptane
14		1,2-dichloropropene
15		4,4-diamino-2,3,6-trichlorooctane
16		2,2,3,3,4-pentachloropentane
17	$\text{H}_3\text{C}-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}_3$	
18	$\begin{array}{c} \text{CH}_2 \\ \\ \text{H}_3\text{C}-\text{CH}_2-\text{C}-\text{CH}_2-\text{CH}_2-\text{CH}_3 \end{array}$	
19	$\begin{array}{c} \text{Cl} \\ \\ \text{H}_3\text{C}-\text{CH}-\text{CH}-\text{CH}=\text{CH}-\text{CH}_3 \\ \\ \text{NO}_2 \end{array}$	
20	$\begin{array}{c} \text{Cl} \\ \\ \text{H}_3\text{C}-\text{CH}_2-\text{CH}-\text{CH}-\text{CH}-\text{CH}_3 \\ \qquad \qquad \\ \text{Cl} \qquad \qquad \text{Cl} \end{array}$	

21	$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{C}-\text{CH}_2-\text{C}=\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{Br} \quad \text{Br} \end{array}$	
22	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl} \\ \\ \text{HC}-\text{CH}_2-\text{C}-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	
23	$\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \quad \text{Cl} \quad \text{Cl} \\ \quad \quad \quad \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_2-\text{C}=\text{C}-\text{CH}_2-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	
24		5-amino-3-chloro-1-pentene
26		4-chloro-2,2-dinitro-3-heptene
27		<i>trans</i> -3-octene
28	$\begin{array}{c} \text{Cl} \\ \\ \text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{Cl} \end{array}$	
29	$\begin{array}{c} \text{Br} \quad \text{Br} \\ \quad \\ \text{HC}\equiv\text{C}-\text{CH}-\text{CH}-\text{CH}_2-\text{CH}_3 \end{array}$	
30	$\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_3$	
31		5,5-dimethyl-2-hexyne
32		5-amino-3-heptyne
33		<ul style="list-style-type: none"> a. pentane b. 2-pentene c. 1-pentyne

34	$\begin{array}{c} \text{H}_2\text{C}-\text{CH}-\text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{CH}-\text{CH}_2 \end{array}$	
35		
36		
37		
38		
40		
41		
42		
43		
44	 (C ₆ H ₁₀)	
45	 (C ₁₂ H ₂₆)	(recall that in line diagrams, lines represent carbon-carbon bonds; this contains isopropyl)
46	 (C ₁₂ H ₂₄)	

47	 (C_9H_{16})	
48		1,3-diaminopropane (line diagram)
49		5-ethyl-4,5-dimethyl- <i>trans</i> -2-heptene (line diagram)
50	$ \begin{array}{c} H_3C \\ \diagdown \\ C \\ \diagup \\ H \end{array} = \begin{array}{c} H \\ \diagup \\ C \\ \diagdown \\ CH_2-CH_2-CH_3 \end{array} $	(indicate if it is <i>cis</i> or <i>trans</i> isomer)