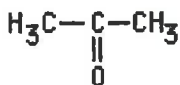


# Organic Chemistry: Nomenclature Assignment

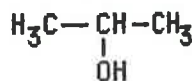
Name the following ...

1)



propanone

2)



2-propanol

cyclohexane

3)

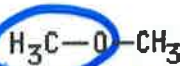


4)



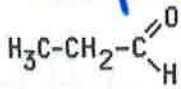
cyclohexene

5)



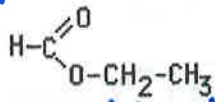
methoxymethane

6)



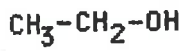
propanal

7)



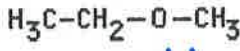
ethyl methanoate

8)



ethanol

9)



methoxyethane

10)



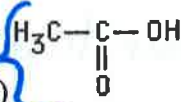
1,3-cyclopentadiene

11)



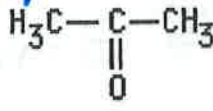
benzene

12)



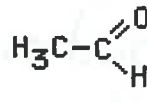
ethanoic acid

13)



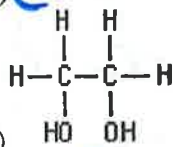
propanone

14)



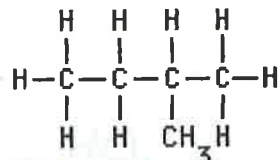
ethanal

15)



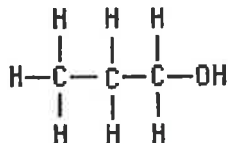
1,2-ethanediol

16)



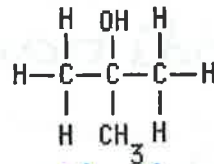
2-methyl butane

17)



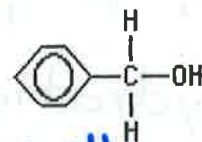
1-propanol

18)



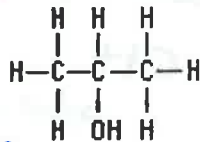
2-methyl-2-propanol

19)



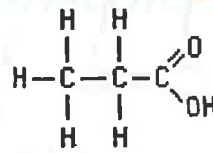
phenyl methanol

20)



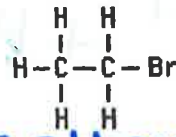
2-propanol

21)



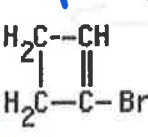
propanoic acid

22)



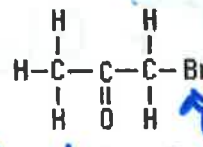
bromoethane

23)



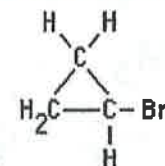
1-bromocyclobutene

24)



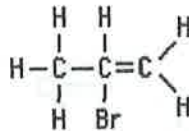
1-bromopropanone

25)



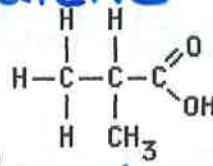
bromocyclopropane

26)



2-bromopropene

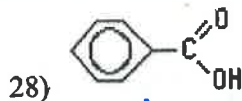
27)



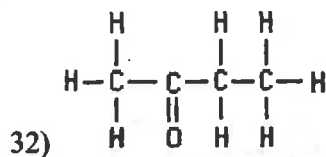
2-methyl propanoic acid

benzoic acid

or

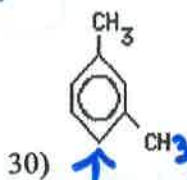
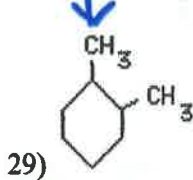


phenyl methanoic acid

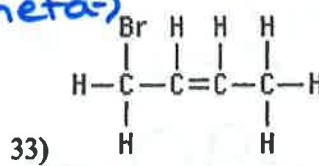
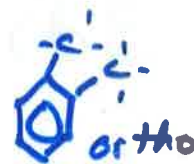
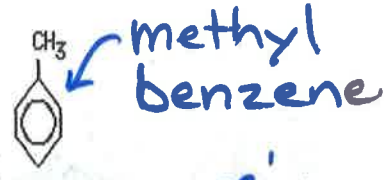


2-butanone

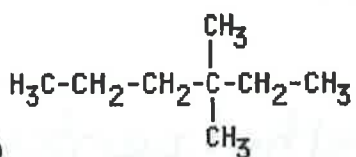
1,2-dimethylcyclohexane



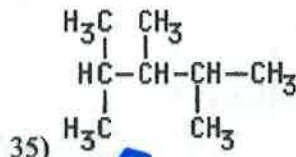
1,3-dimethylbenzene or (meta-)



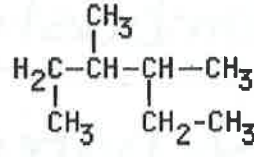
1-bromo-2-butene



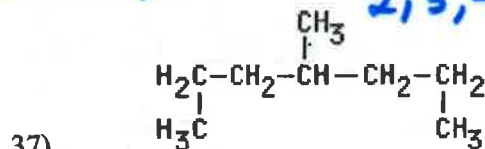
3,3-dimethylhexane



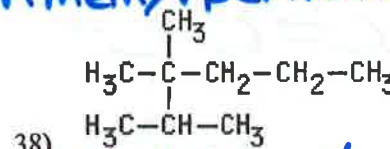
2,3,4-trimethylpentane



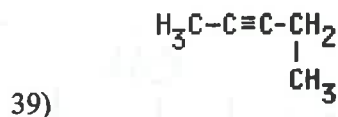
3,4-dimethylhexane



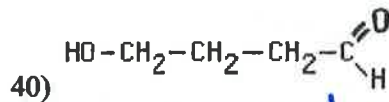
4-methylheptane



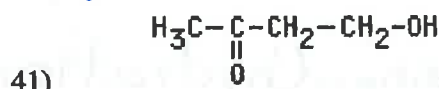
2,3,3-trimethylhexane



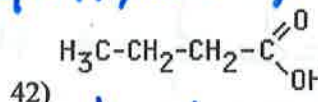
2-pentyne



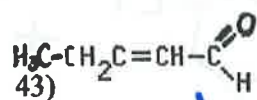
4-hydroxybutanal



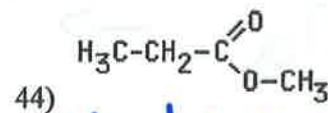
4-hydroxybutanone



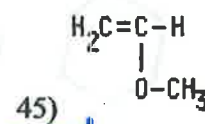
butanoic acid



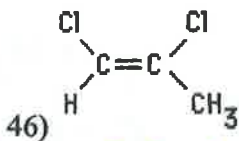
2-pentenal



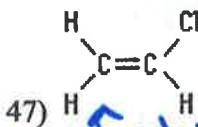
methyl propanoate



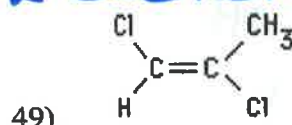
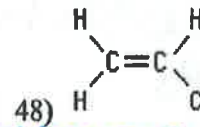
methoxy ethene



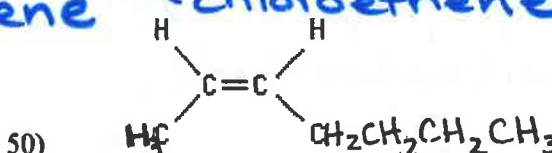
cis-1,2-dichloropropene



chloroethene



trans-1,2-dichloropropene

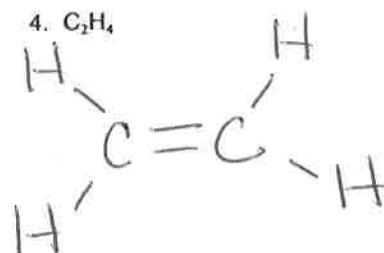
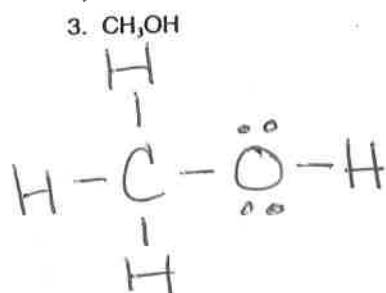
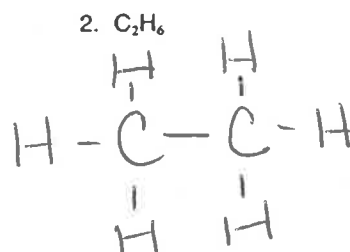
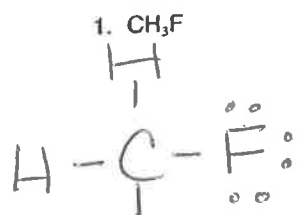


cis-2-heptene

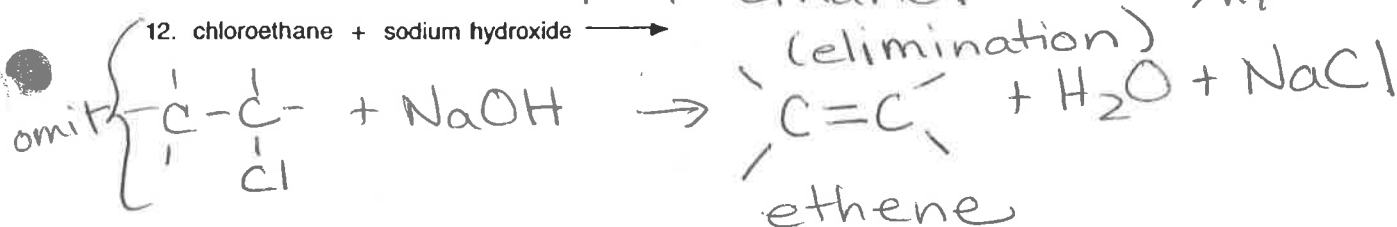
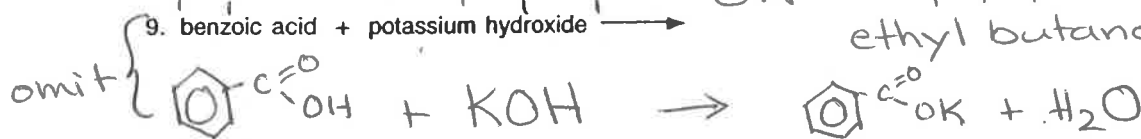
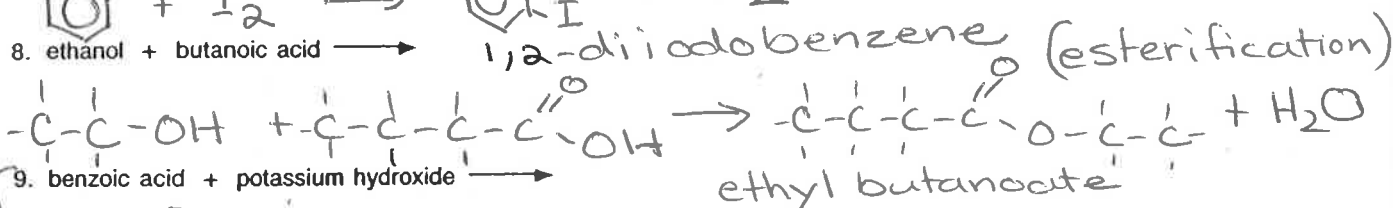
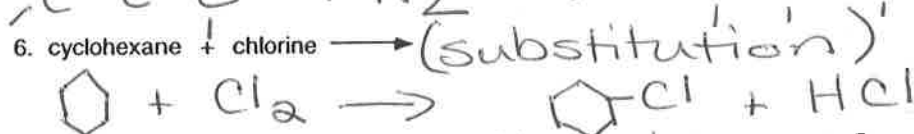
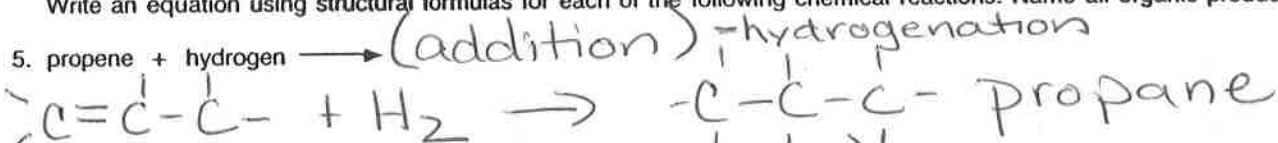
"cis & trans are optional unless requested!"

# Bonding and Organic Chemistry Overview

Draw structural formulas for each of the following molecules.

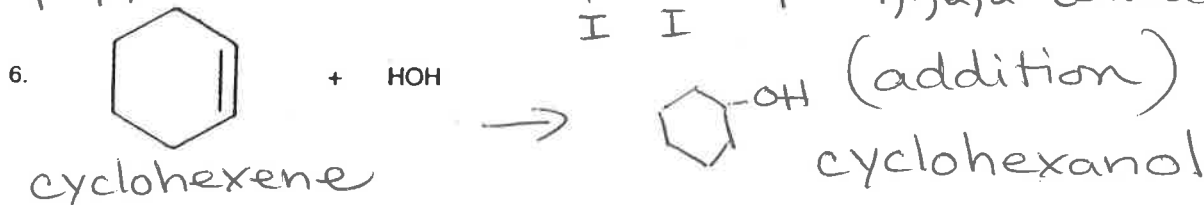
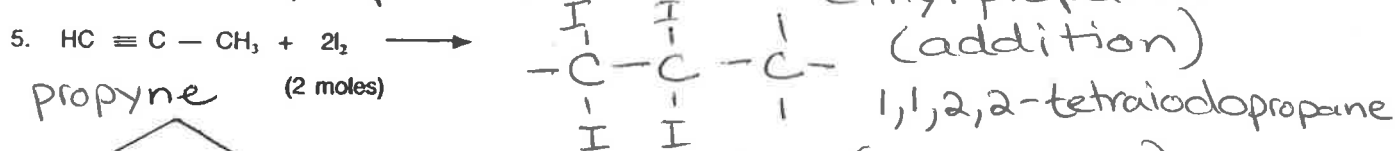
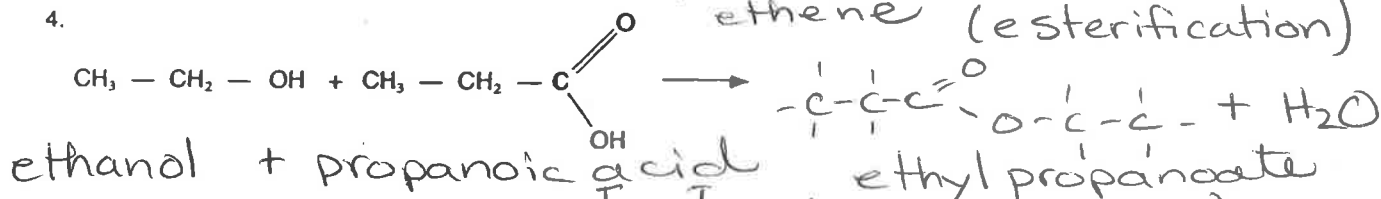
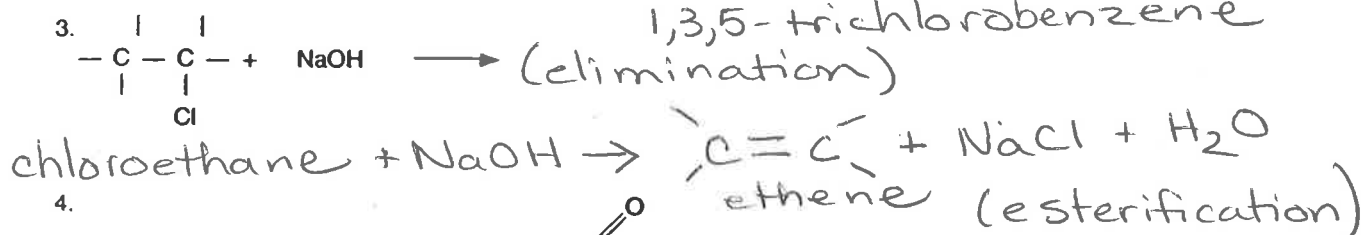
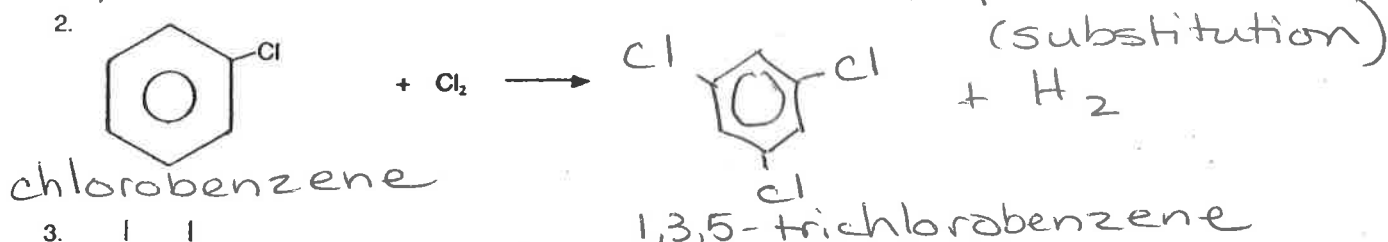
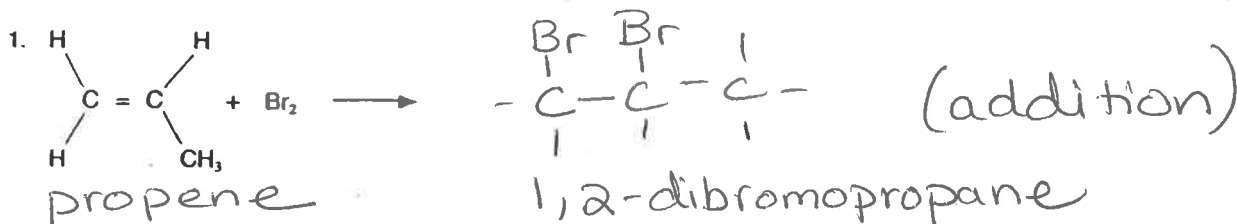


Write an equation using structural formulas for each of the following chemical reactions. Name all organic products.



# Organic Chemistry Review

Write equations using structural formulas for each of the following reactions. Name all organic reactants and products.

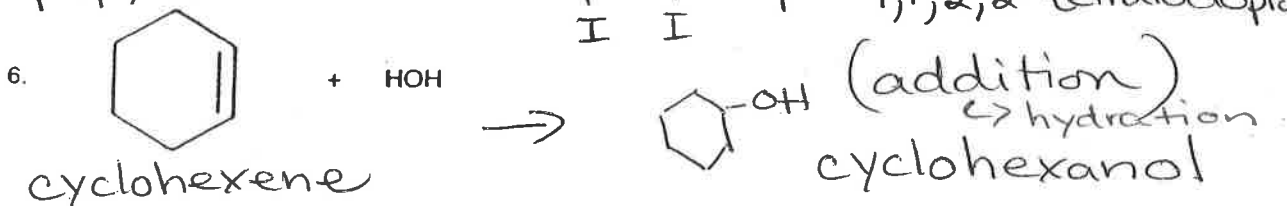
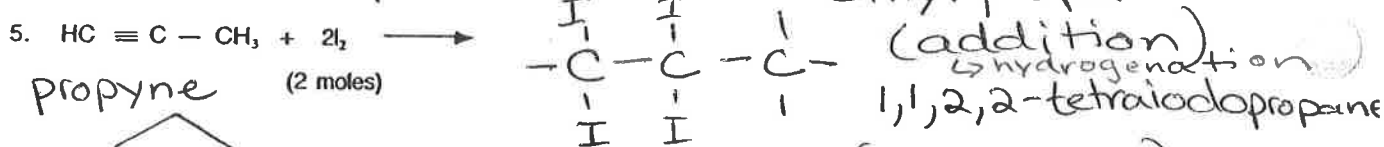
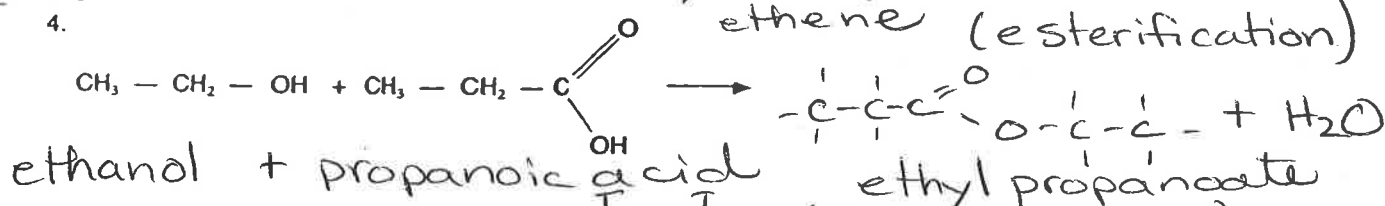
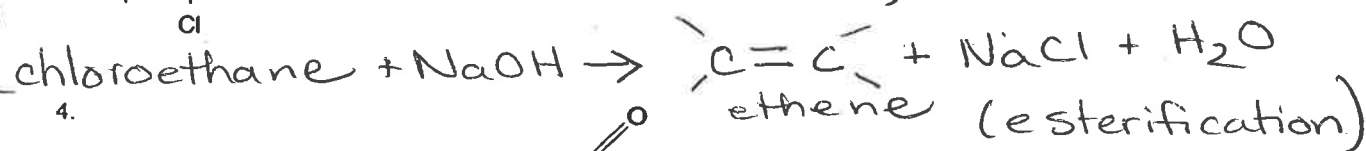
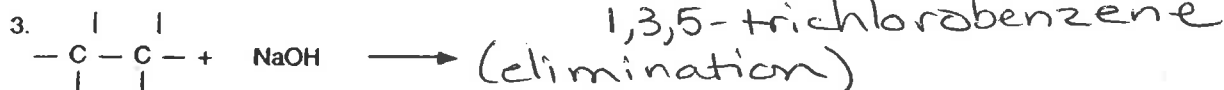
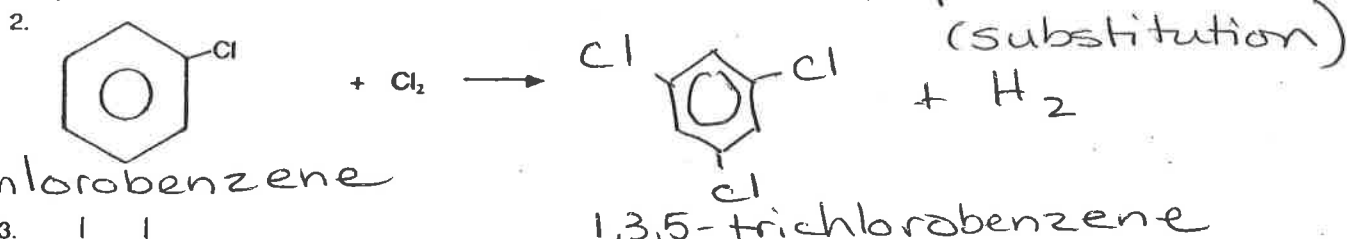
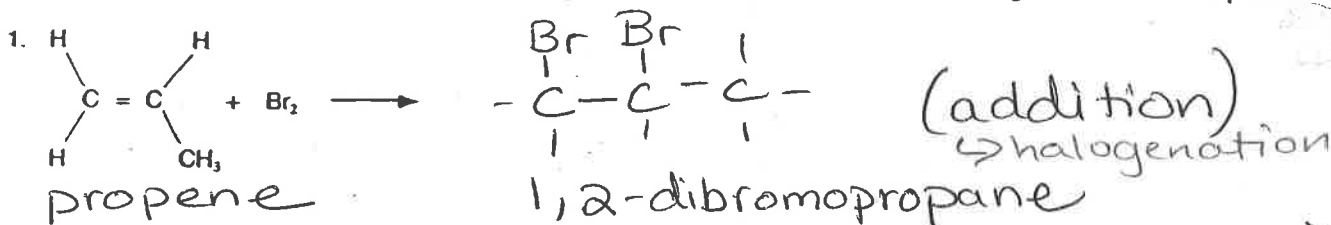


7. Account for the variation in boiling point among the following two-carbon molecules.

Compound	Boiling Point (°C)
ethane (C <sub>2</sub> H <sub>6</sub> only)	-88.6
monochloroethane (halogen)	12.2
ethanol (H bond) polar	78.5
ethanoic acid (2 H bonds) polar	117.9

# Organic Chemistry Review

Write equations using structural formulas for each of the following reactions. Name all organic reactants and products.



7. Account for the variation in boiling point among the following two-carbon molecules.


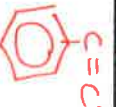

Compound	Boiling Point (°C)
ethane (C & H only)	-88.6
monochloroethane (halogen)	12.2
ethanol (H bond) polar	78.5
ethanoic acid (2 H bonds) polar	117.9

-OH  $\rightarrow$  highest b.p. & highest solubility in H<sub>2</sub>O  
 =O  $\rightarrow$  next highest  
 -O-  
 -N  
 -halogens } slightly polar  
 -hydrocarbon chain only  $\rightarrow$  lowest b.p. + lowest solubility in H<sub>2</sub>O  
 (C-H)




Complete the following table.

Organic Chemistry Review  
Organic Nomenclature and Uses of Some Organic Compounds

	Name	Molecular Formula	Structural Formula	Uses (Optional)
1.	methane	$CH_4$	$\begin{array}{c}   \\ -C- \\   \end{array}$	heating of most homes in Western Canada
2.	methanol	$CH_3OH$	$\begin{array}{c} H \\   \\ H-C-O-H \\   \\ H \end{array}$	gas line and windshield washer; solvent for varnishes and shellacs; denaturant for ethanol
3.	methylbenzene (toluene)	$C_6H_5CH_3$		solvent for many glues
4.	ethene	$C_2H_4$	$\begin{array}{c} H & H \\ & \backslash & / \\ & C = C \\ & / & \backslash \\ H & H \end{array}$	manufacture of plastic + synthetic fibers; DDT; synthetic detergents; ethylene glycol; ethylene chloride; tetraethyl lead; paints + drugs.
5.	ethanoic (acetic) acid	$CH_3COOH$	$\begin{array}{c} -C- \\   \\ -C(=O)OH \end{array}$	- ingredient in vinegar; used as solvent + in photography
6.	phenylethene (vinylbenzene or styrene)	$C_6H_5CH=CH_2$		production of plastic (e.g. polystyrene)
7.	ethyne (acetylene)	$C_2H_2$	$H-C \equiv C-H$	commercial synthesis of films. (Orlon, Acrilan, Dynel); oxy-acetylene welding
8.	1,2-ethanediol (ethylene glycol)	$C_2H_4(OH)_2$	$\begin{array}{c} HO & H & H & H \\   &   &   &   \\ -C- & -C- & -C- & -C- \\   &   &   &   \\ H & H & H & OH \end{array}$	radiator anti-freeze
9.	phenol	$C_6H_5OH$		Lysol disinfectant
10.	1,2,3-propanetriol (glycerin)	$C_3H_7(OH)_3$	$\begin{array}{c}   &   &   \\ -C- & -C- & -C- \\   &   &   \\ OH & OH & OH \end{array}$	- cosmetics; pharmaceuticals; inks; candy; raw material for some explosives

## Organic Chemistry Review

	Name	Molecular Formula	Structural Formula	Uses (Optional)
11.	butane	$C_4H_{10}$	$  \begin{array}{c}    &   &   &   \\  -C & -C & -C & -C- \\    &   &   &   \\  H & H & H & H  \end{array}  $	a lighter fluid
12.	propane	$C_3H_8$	$  \begin{array}{c}    &   &   \\  -C & -C & -C- \\    &   &   \\  H & H & H  \end{array}  $	gaseous fuel
13.	propylene (propene)	$C_3H_6$	$  \begin{array}{c}  H & & H & & H \\    & &   & &   \\  C & = & C & - & C - H \\  & &   & &   \\  & & H & & H  \end{array}  $	polymers (plastic)
14.	ethanol	$C_2H_5OH$	$  \begin{array}{c}    &   \\  -C & -C-OH \\    &   \\  H & H  \end{array}  $	alcoholic beverages; in pharmaceutical; industry as solvent & antiseptic
15.	p-dichlorobenzene	$C_6H_4Cl_2$		moth repellent
16.	2-propanol	$CH_3CH(OH)CH_3$	$  \begin{array}{c}  H & & OH & & H \\    & &   & &   \\  H-C & - & C & - & C-H \\    & &   & &   \\  H & & H & & H  \end{array}  $	rubbing alcohol; solvent
17.	butanoic acid	$C_3H_7COOH$	$  \begin{array}{c}    &   &   &   &   \\  -C & -C & -C & -C & =O \\    &   &   &   &   \\  H & H & H & H & OH  \end{array}  $	odor-causing agent in rancid butter; flavouring agent
18.	2-hydroxypropanoic acid (lactic acid)	$CH_3CH(OH)COOH$	$  \begin{array}{c}  H & & OH & & O \\    & &   & &    \\  H-C & - & C & - & C \\    & &   & &   \\  H & & H & & OH  \end{array}  $	found in sour milk
19.	dichlorodifluoromethane (freon)	$CF_2Cl_2$	$  \begin{array}{c}  F & & F \\    & &   \\  C & - & C \\    & &   \\  Cl & & Cl  \end{array}  $	refrigerant; propellant for many good aerosol products
20.	trichloromethane (chloroform)	$CHCl_3$	$  \begin{array}{c}  H \\    \\  C \\    \\  Cl  \end{array}  $	good solvent; general anesthetic; sedative; antiseptic