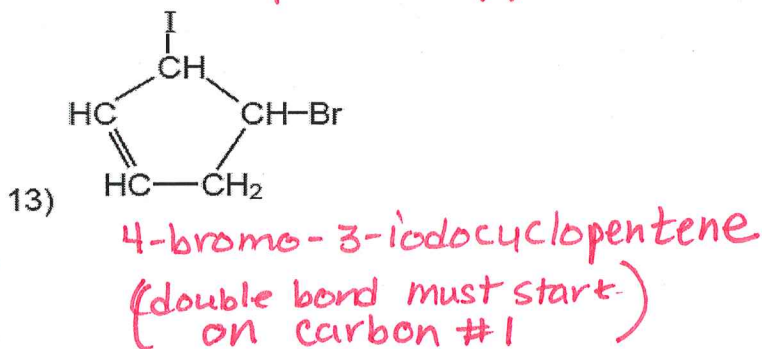
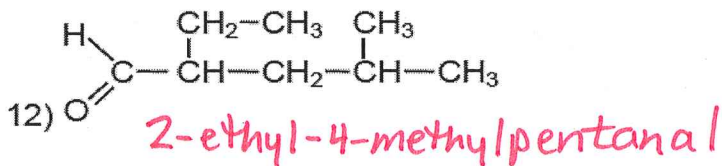
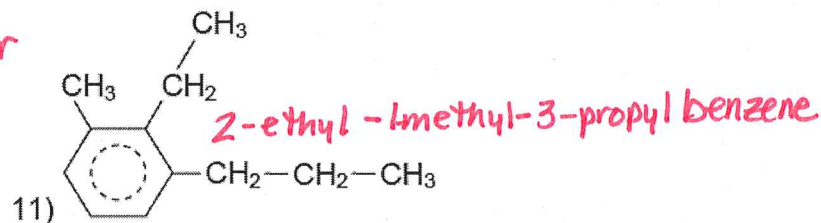
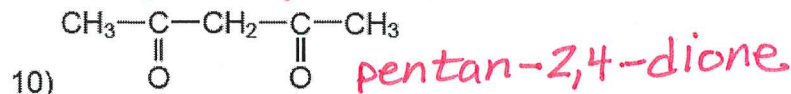
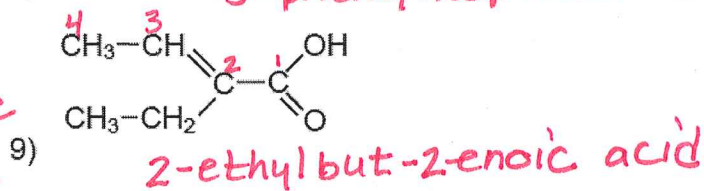
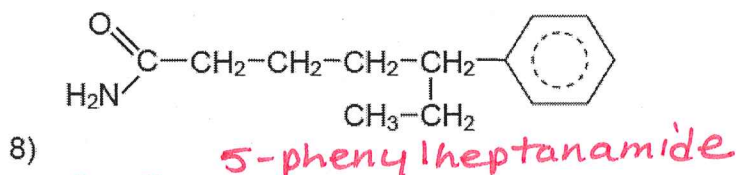
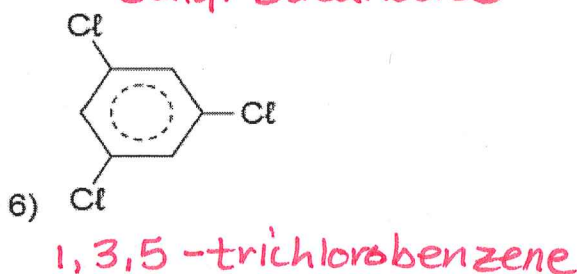
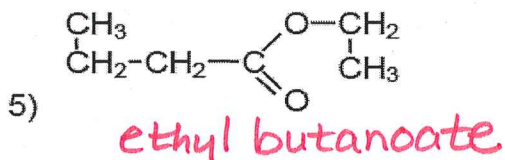
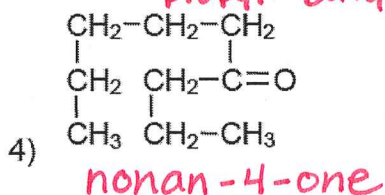
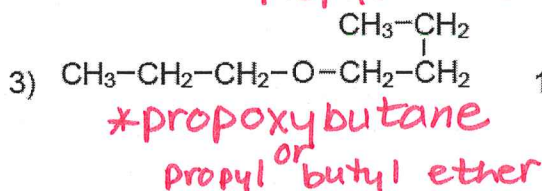
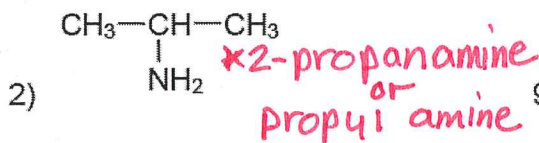


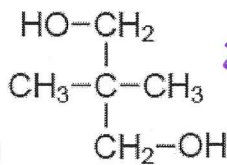
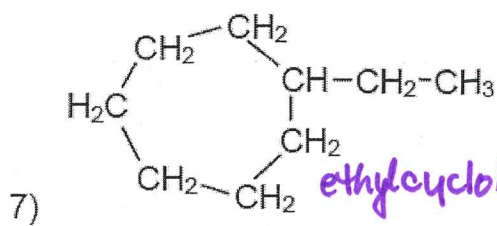
The table at the right summarizes all the information you have about the functional groups in this worksheet in order of priority. Naming organic compounds can get complicated, but it comes down to simple steps: Find the highest priority **functional group**, identify the **carbon chain** and number it, identify **side chains** and their positions, and put all the pieces of the name in order.

COMPOUND	STRUCTURE	NAME	PREFIX
carboxylic acid	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH}$	R- <i>oic acid</i>	
ester	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{R}'$	R- <i>oate</i>	
amide	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{N}(\text{R}')(\text{R}'')$	R- <i>amide</i>	
aldehyde	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$	R- <i>al</i>	methanoyl-
ketone	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{R}'$	R- <i>one</i>	oxo-
alcohol	R-OH	R- <i>ol</i>	hydroxy-
amine	$\text{R}-\text{N}(\text{R}')(\text{R}'')$	R- <i>amine</i>	amino-

### EXERCISES

A. Name these organic compounds:





2,2-dimethylpropan-1,3-diol

B. Draw the structural diagrams for these compounds:

1) methoxyoctane

6) 1,3-butanediol

2) propanamide

7) phenyl butanoate

3) 2-propenal

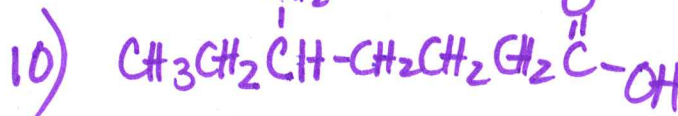
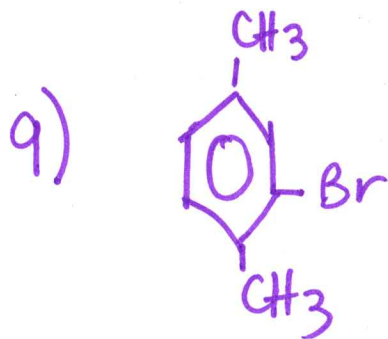
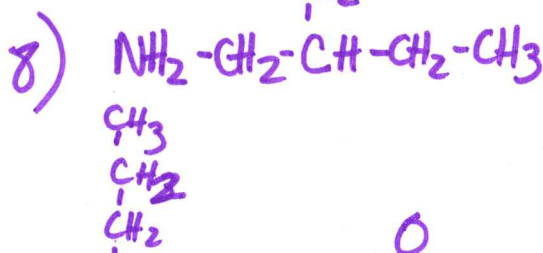
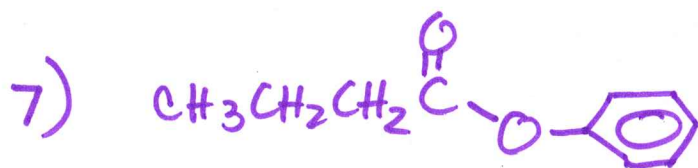
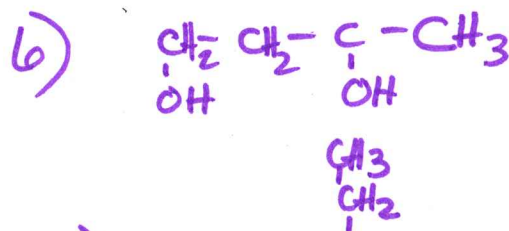
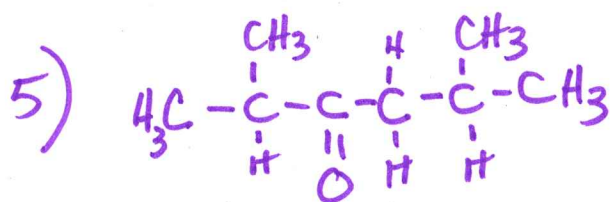
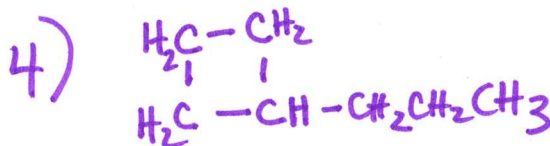
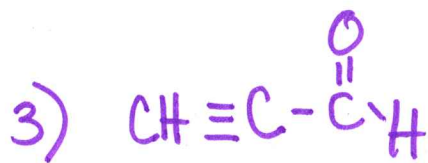
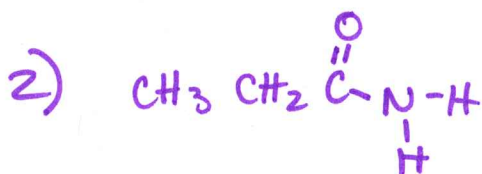
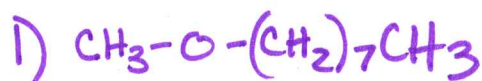
8) 2-ethyl-1-butanamine

4) propylcyclobutane

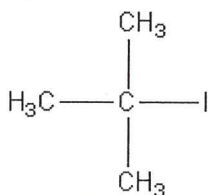
9) 2-bromo-1,4-dimethylbenzene

5) 2,5-dimethyl-3-hexanone

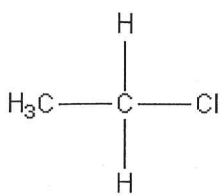
10) 5-ethyloctanoic acid



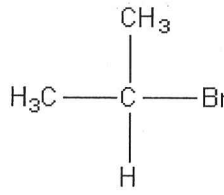
C. Identify the following as a primary, secondary or tertiary halogenoalkane:



Tertiary

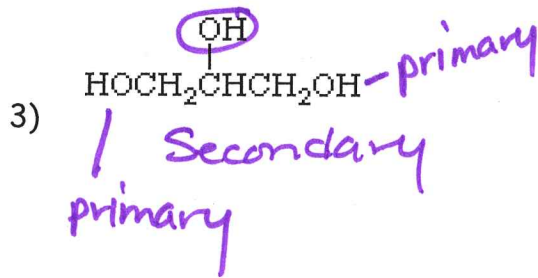
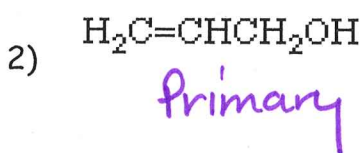


Primary

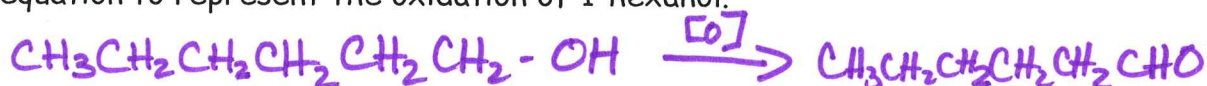


Secondary

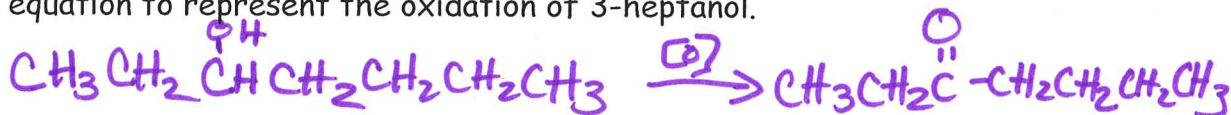
D. Identify the following alcohols as primary, secondary or tertiary:



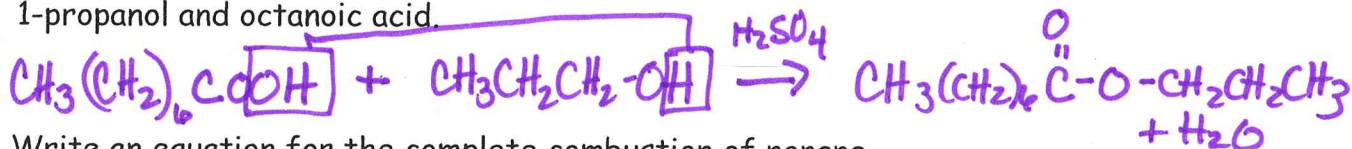
E. Write an equation to represent the oxidation of 1-hexanol.



F. Write an equation to represent the oxidation of 3-heptanol.



G. Write an equation to represent the esterification reaction that occurs between 1-propanol and octanoic acid.



H. Write an equation for the complete combustion of nonane.



What additional products would form if this were an incomplete combustion?

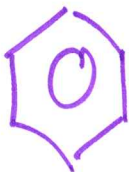


I. What is the difference in the orbital overlap in a sigma bond compared to a pi bond? Which is more easily broken and why?

Sigma: End on End overlap

Pi: Side by side overlap

J. Draw benzene and explain the bonding in benzene.



6 delocalized electrons shared among all 6 C in ring.

More easily broken because less  $\epsilon$  needed due to all "p" orbital with side by side overlap