



# ORGANIC CHEMISTRY

CONSTITUTIONAL, GEOMETRIC, AND STEREO ISOMERS

DR. MIOY T. HUYNH | YALE UNIVERSITY

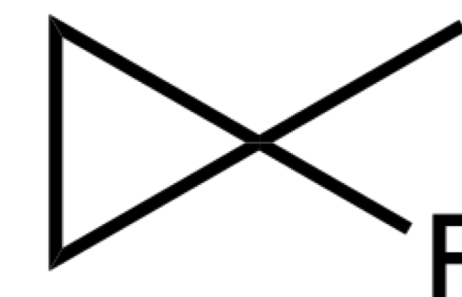
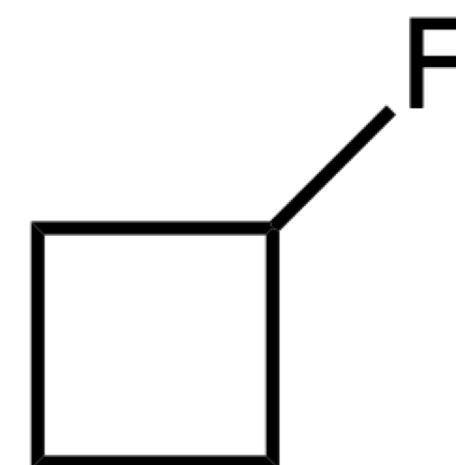
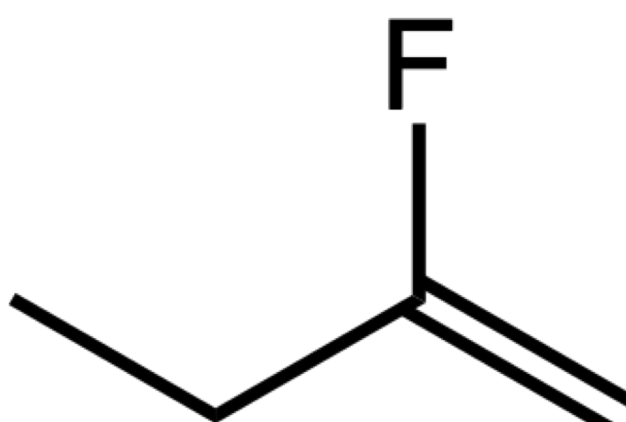
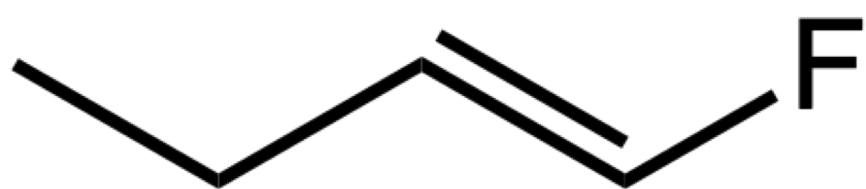
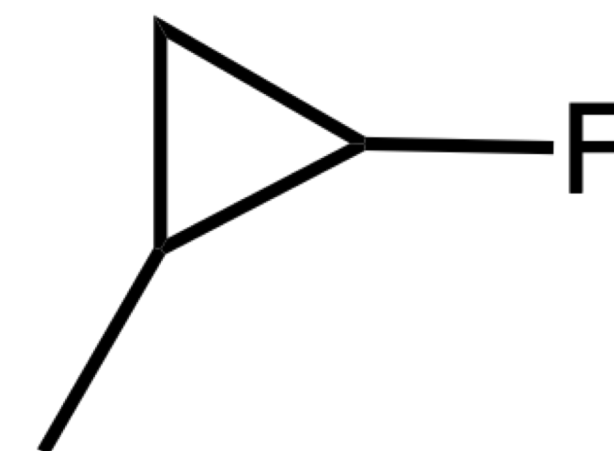
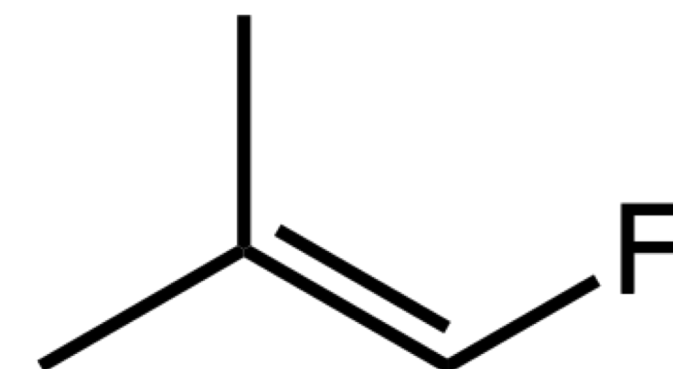
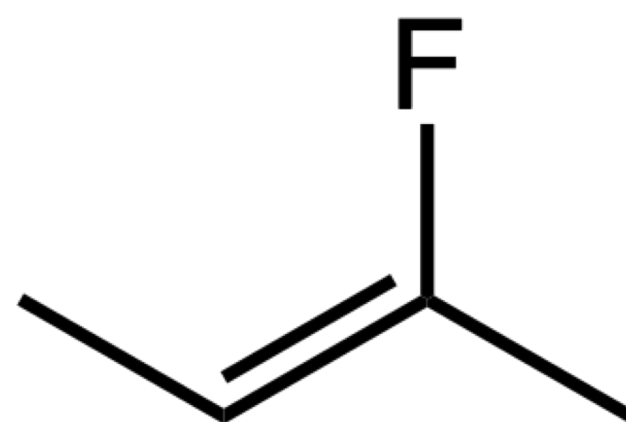
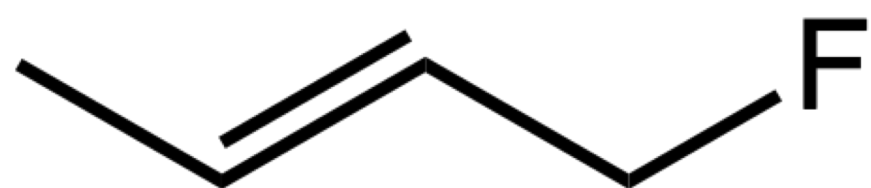
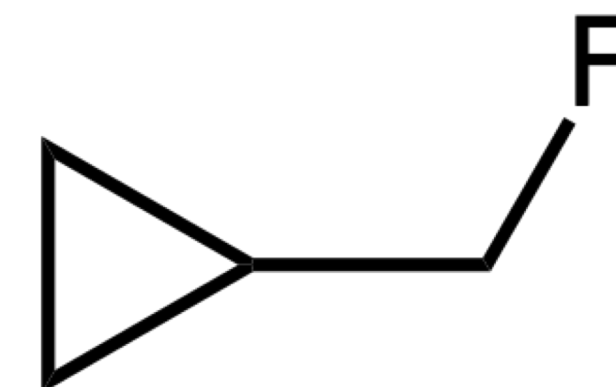
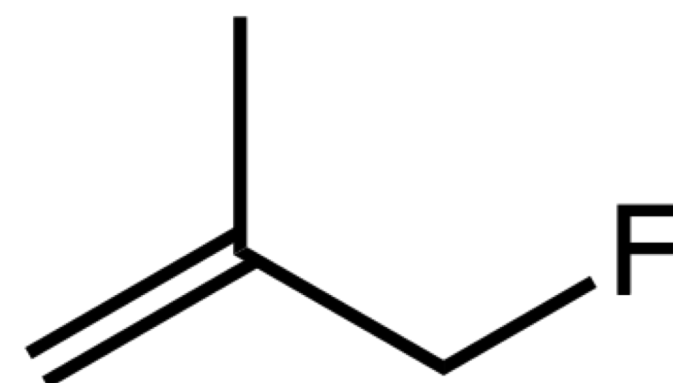
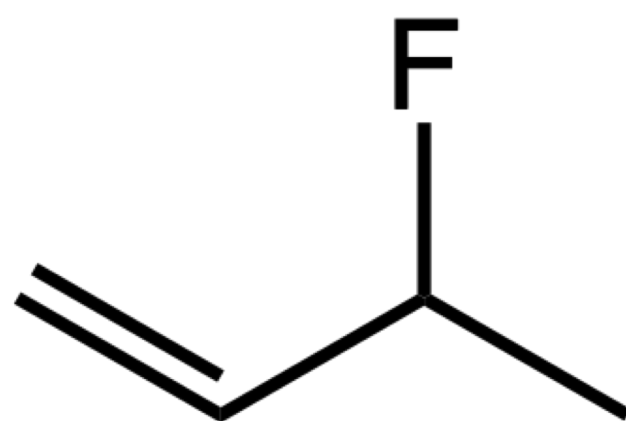
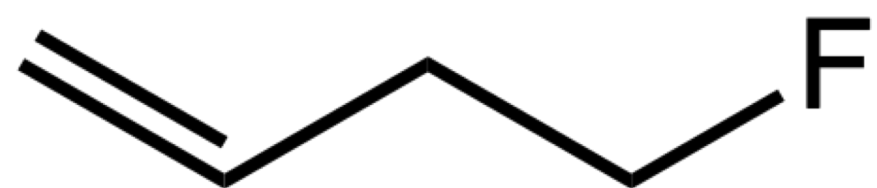
CHEMISTRY 165B | SPRING 2019

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# PRACTICE PROBLEM 1

Draw and name the constitutional isomers for  $C_4H_7F$ .

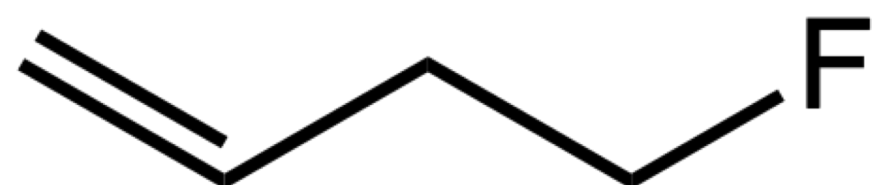
— answer —



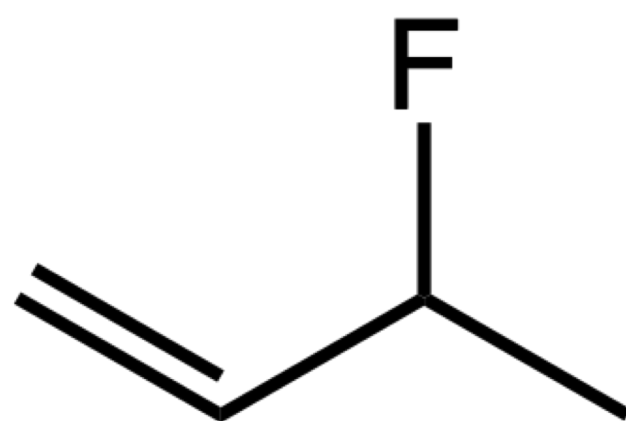
# PRACTICE PROBLEM 1

Draw and name the constitutional isomers for  $C_4H_7F$ .

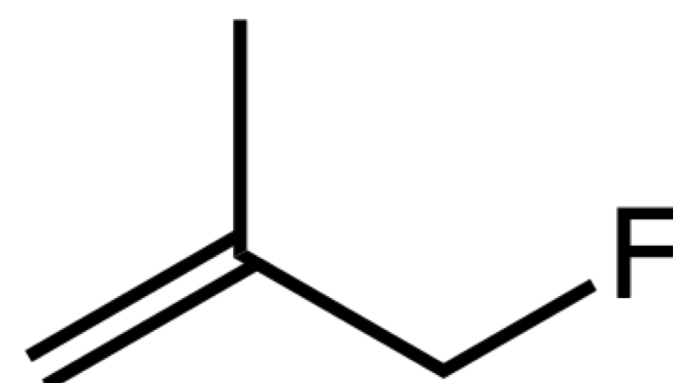
— answer —



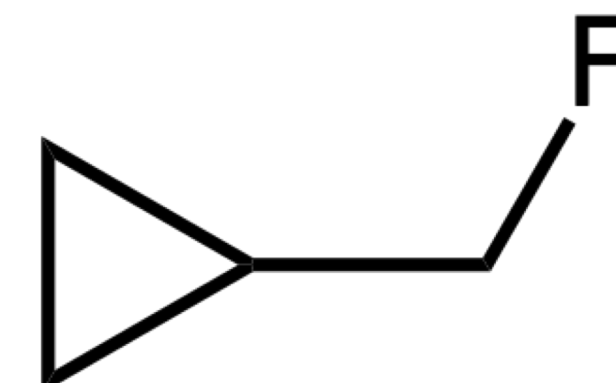
4-fluorobut-1-ene



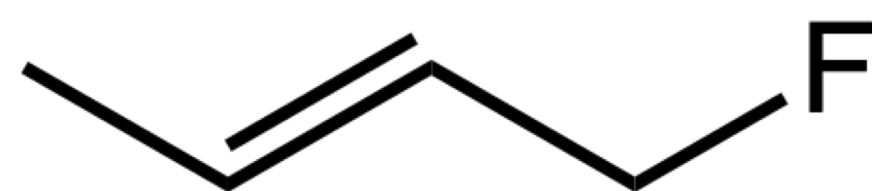
3-fluorobut-1-ene



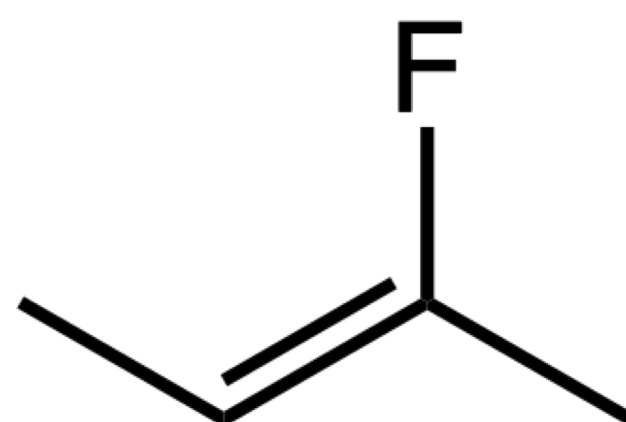
3-fluoro-2-methylprop-1-ene



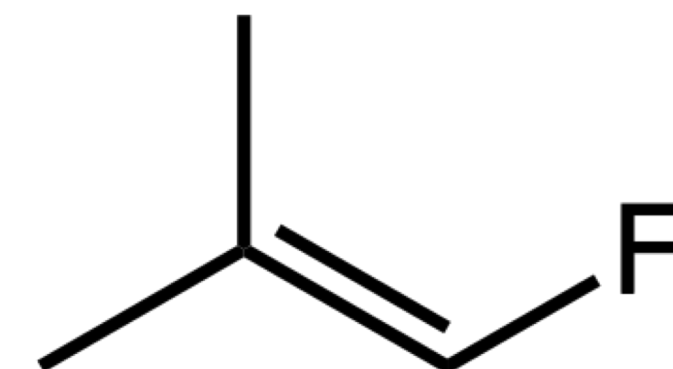
1-(fluoromethyl)  
cyclopropane



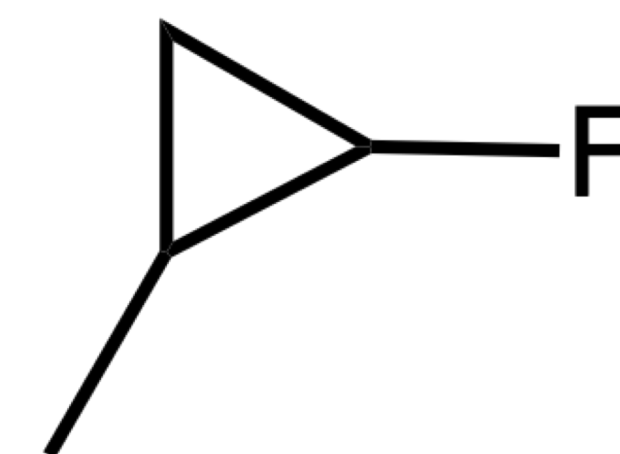
1-fluorobut-2-ene



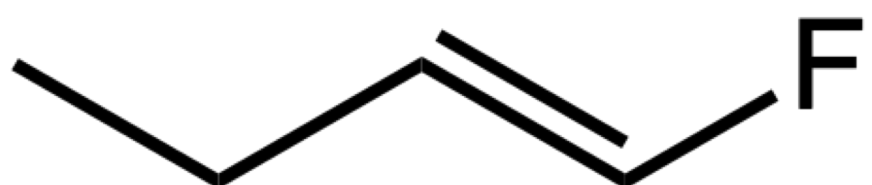
2-fluorobut-2-ene



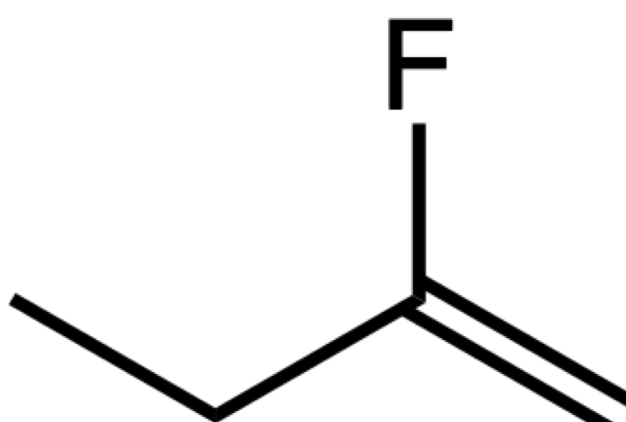
1-fluoro-2-methylprop-1-ene



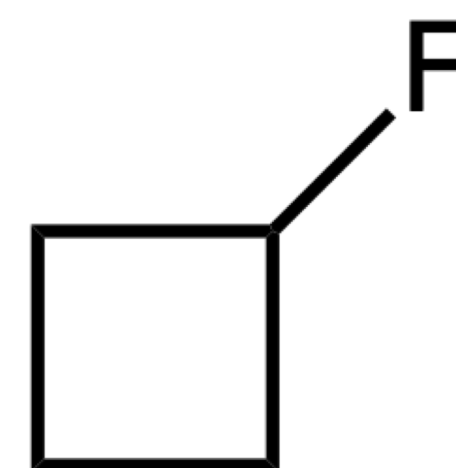
1-fluoro-2-methyl  
cyclopropane



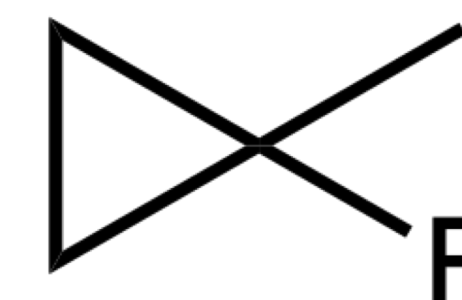
1-fluorobut-1-ene



2-fluorobut-1-ene



1-fluorocyclobutane



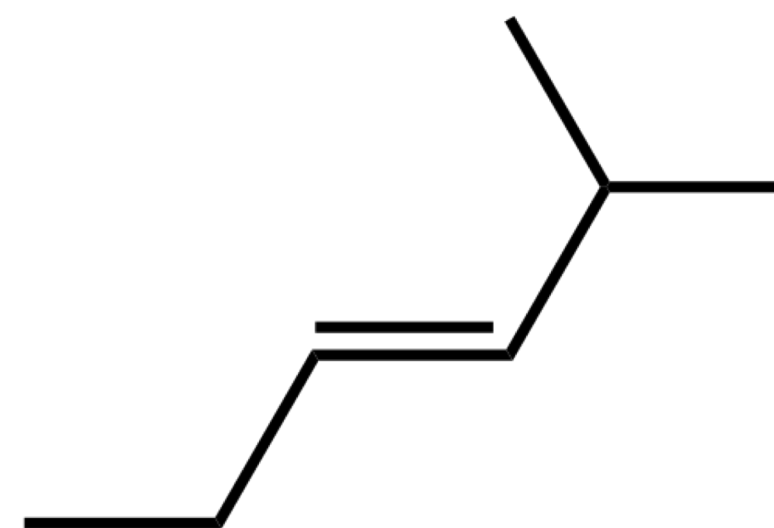
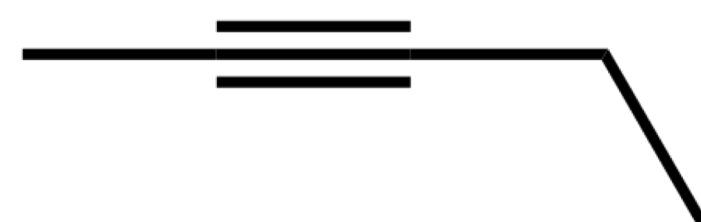
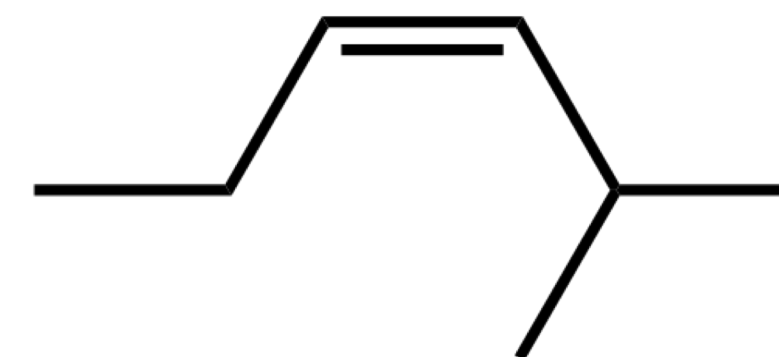
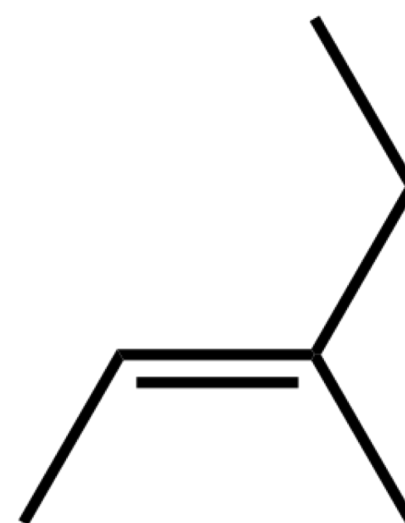
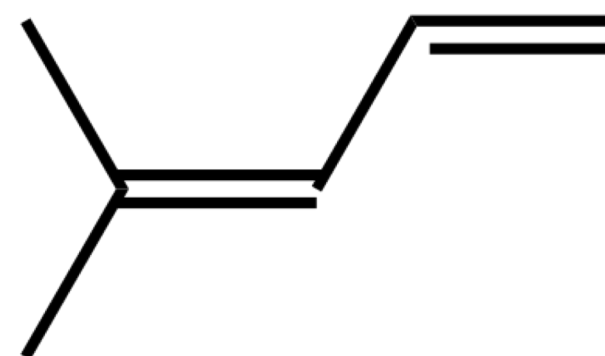
1-fluoro-1-methyl  
cyclopropane

## PRACTICE PROBLEM 2

Determine if each of the following compounds can exhibit geometric isomerism.

If it can, assign the relevant bond(s) as *cis*- (*Z*) or *trans*- (*E*).

— *answer* —

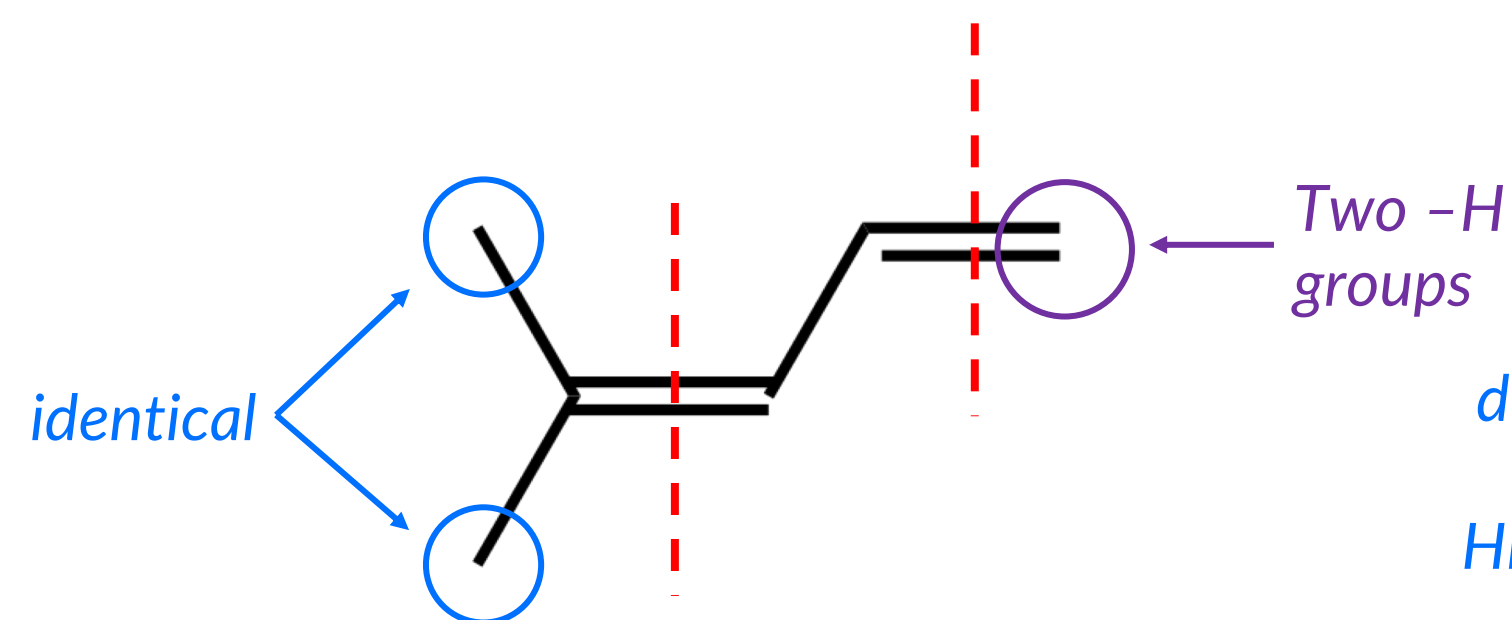


## PRACTICE PROBLEM 2

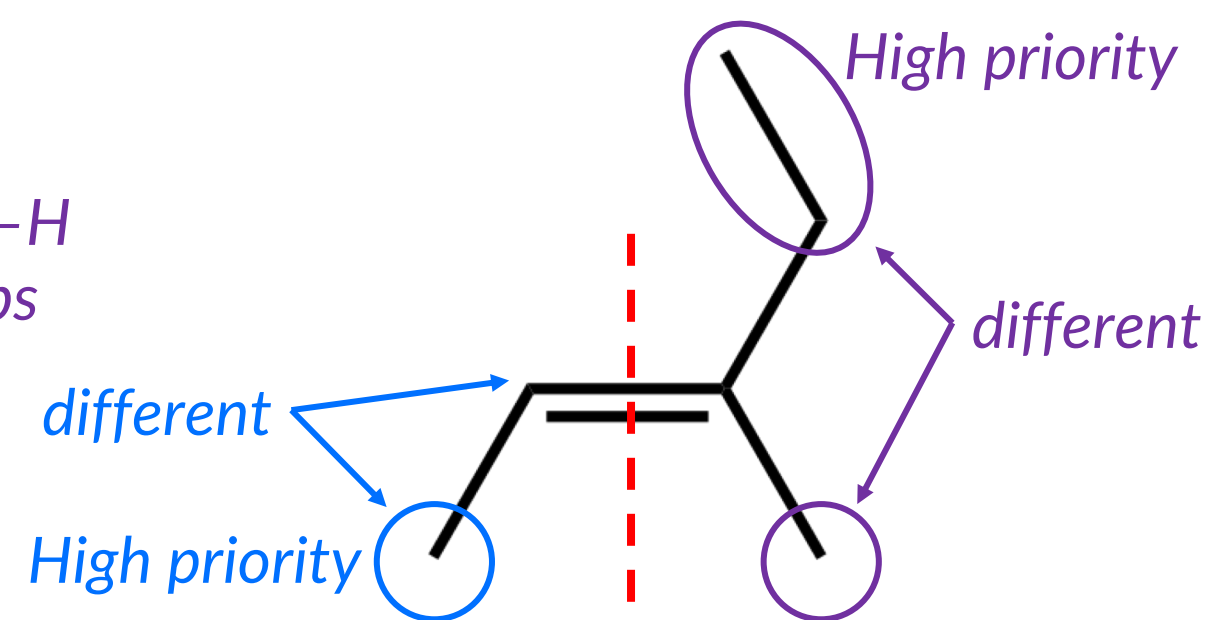
Determine if each of the following compounds can exhibit geometric isomerism.

If it can, assign the relevant bond(s) as *cis*- (*Z*) or *trans*- (*E*).

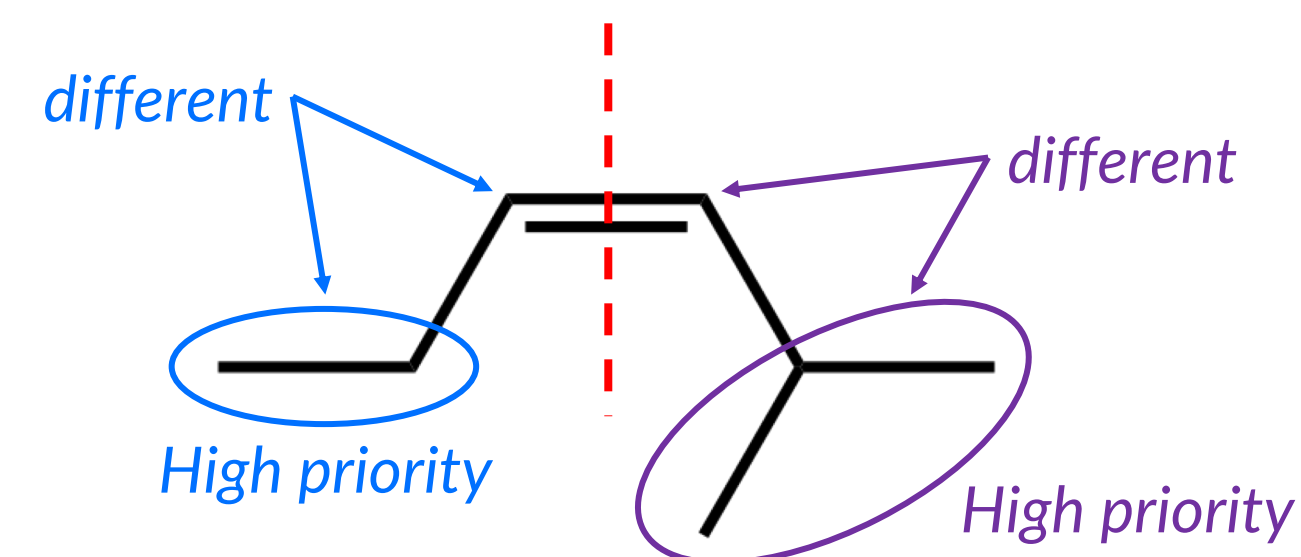
— answer —



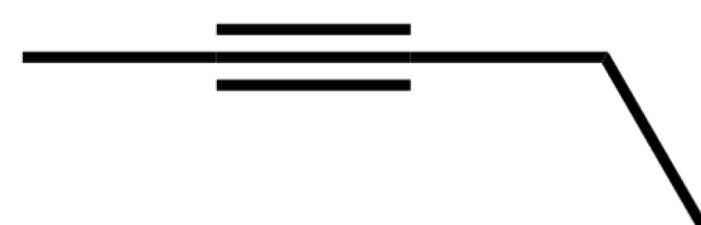
No geometric isomerism



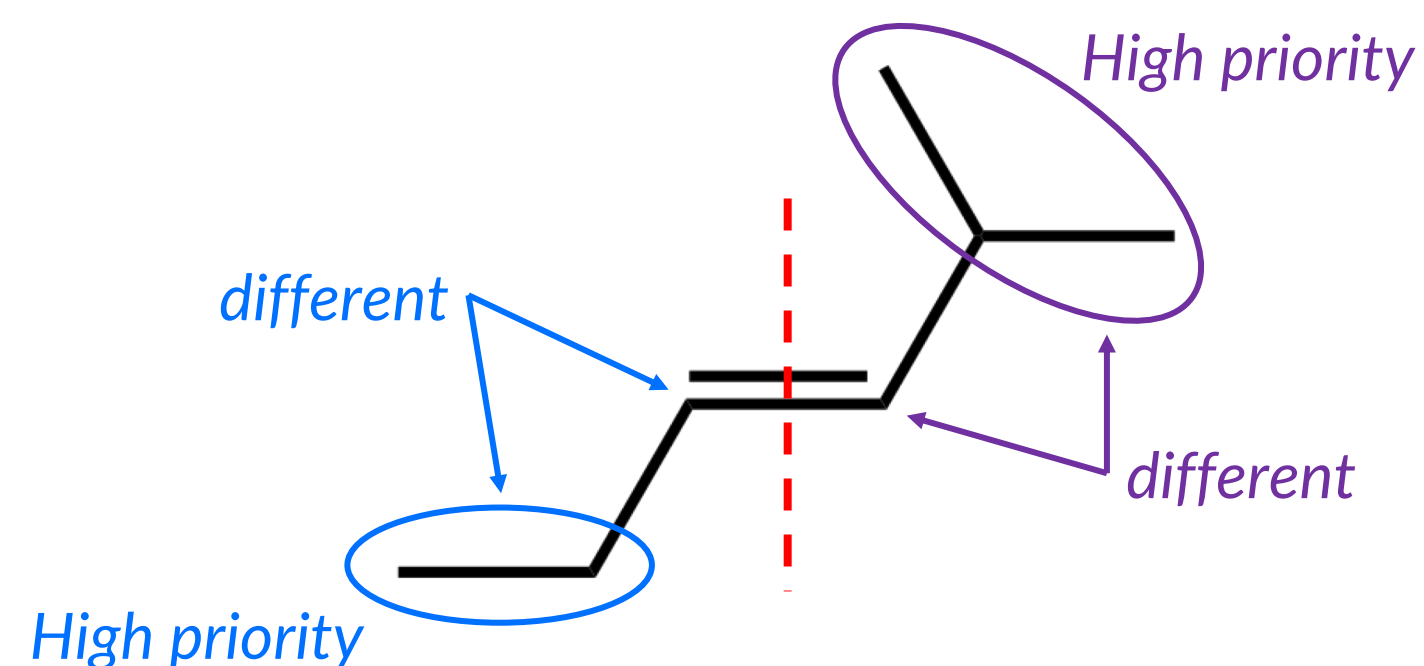
*trans*-3-methylpent-2-ene  
(*E*)-3-methylpent-2-ene



*cis*-2-methylhex-3-ene  
(*Z*)-2-methylhex-3-ene



No geometric isomerism  
Alkyne bonds are linear.

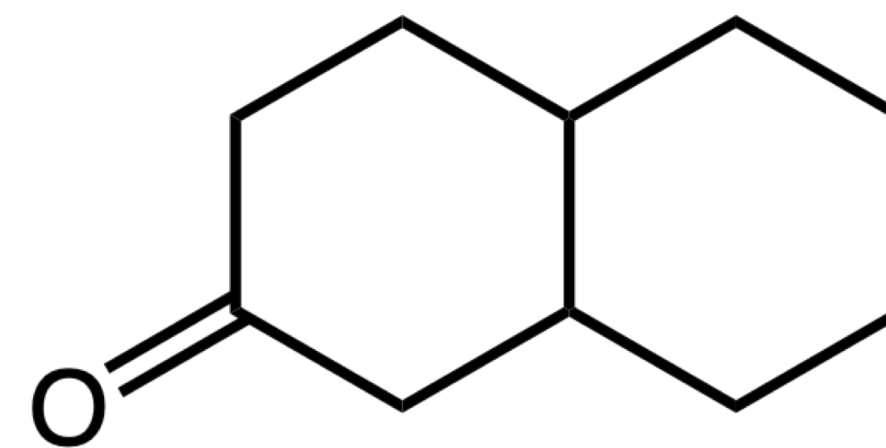
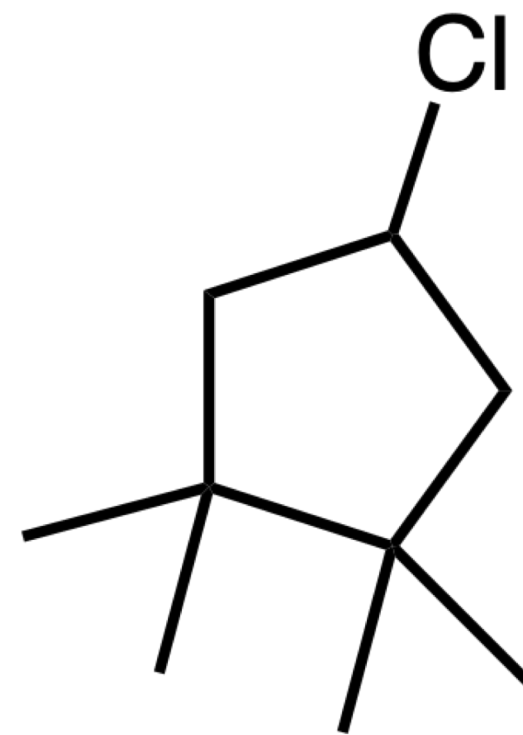
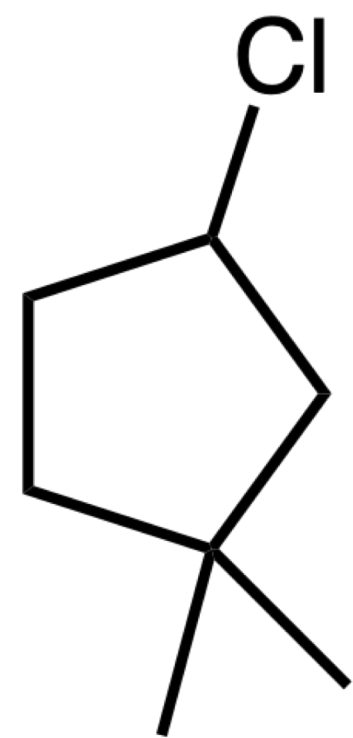
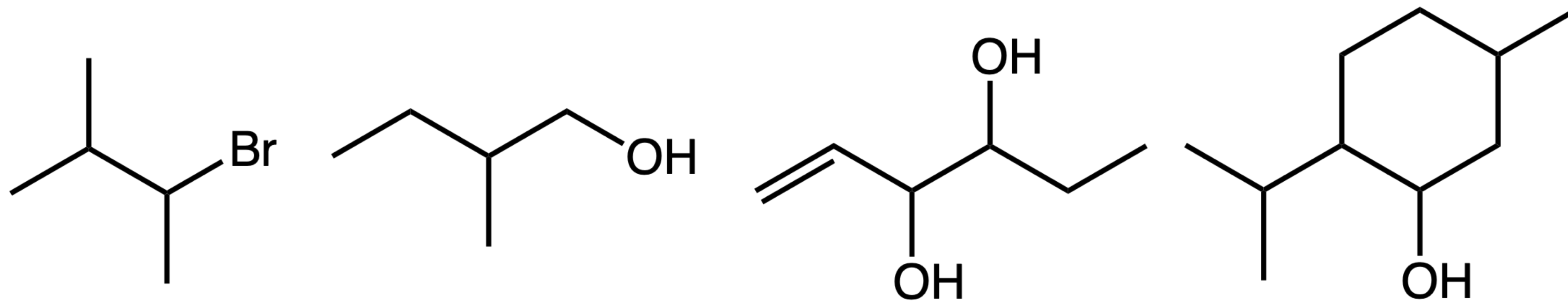


*trans*-2-methylhex-3-ene  
(*E*)-2-methylhex-3-ene

# PRACTICE PROBLEM 3

For each of the following, identify any chiral center(s), if they exist.

— answer —



# PRACTICE PROBLEM 3

For each of the following, identify any chiral center(s), if they exist.

— answer —

