CONCEPT: WHAT IS THE RELATIONSHIP BETWEEN ISOMERS?

In a previous chapter, we used the following flowchart to identify constitutional isomers:

Step 1. **(Are the atoms all the same?)** Count non-_____ atoms *and* IHD in both compounds

- If not exactly the same, they are _____
- If the same, then go to step 2

Step 2. **(Are the atoms all connected the same?)** Look for a _____ atom, then count bonds from there.

-If not exactly the same, they are _____

-If the same, then _____

Due to the possibility of stereoisomers, now we have to add one more step to the flowchart:

Step 3. Count the number/type of stereogenic centers on the molecule

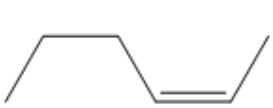
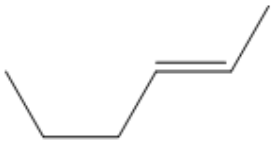
- If _____ chiral/trigonal centers, the two molecules are _____

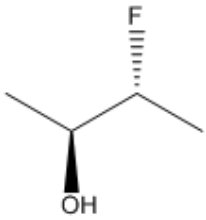
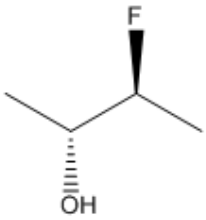
- If _____ chiral center,
  - Same: _____
  - Different: _____

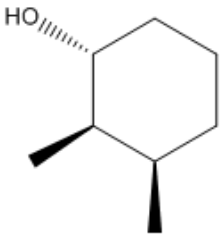
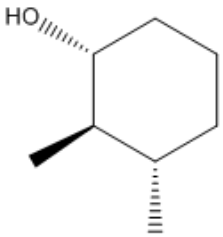
- If _____ chiral centers,
  - All same: _____
  - If one or more different: _____
  - All different: _____

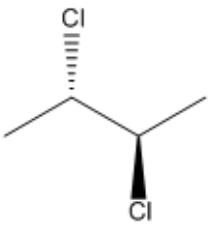
- If _____ chiral centers, symmetrical, opposite: _____
- If _____ trigonal center,
  - Same: _____
  - Different: _____

PRACTICE: Identify the following compounds as identical, constitutional isomers, enantiomers or diastereomers

a.  and 

b.  and 

c.  and 

d.  and