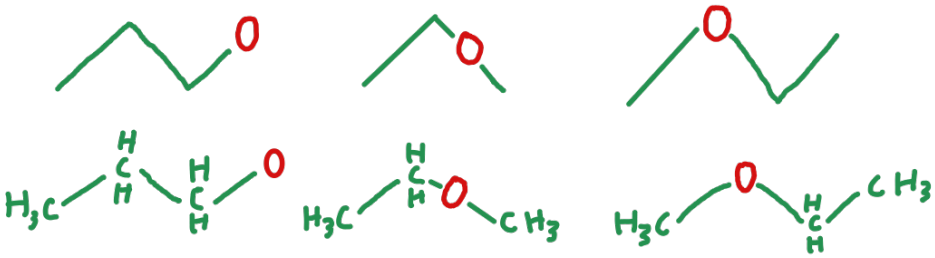
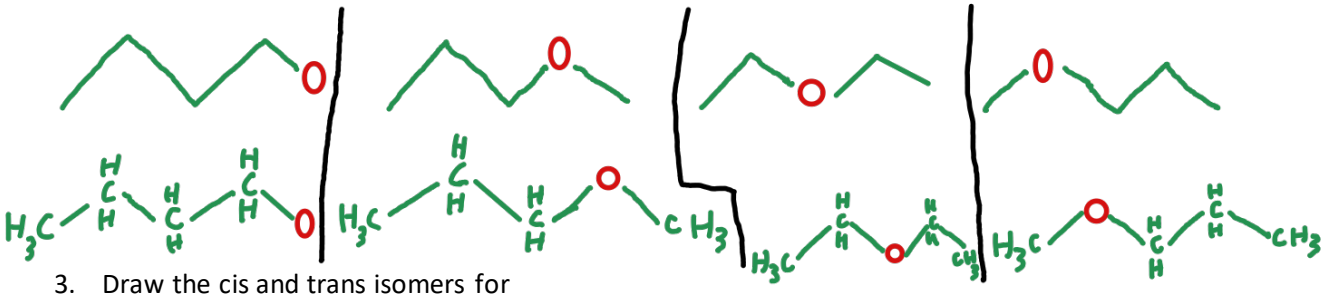
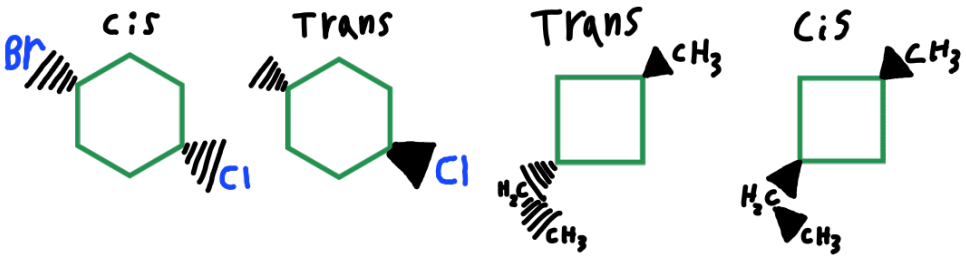
1. Draw three constitutional isomers with the molecular formula C_3H_8O.



2. How many constitutional isomers can you draw for $C_4H_{10}O$.

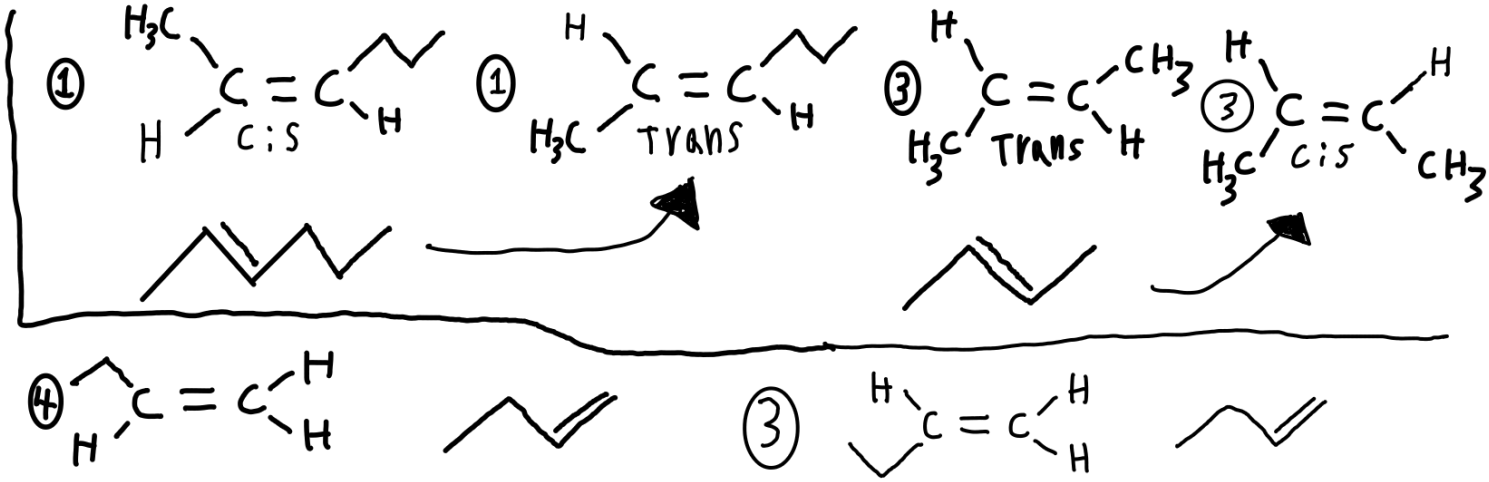


3. Draw the cis and trans isomers for
   a) 1-bromo-4-chlorcyclohexane b) 1-ethyl-3-methylcyclobutane.

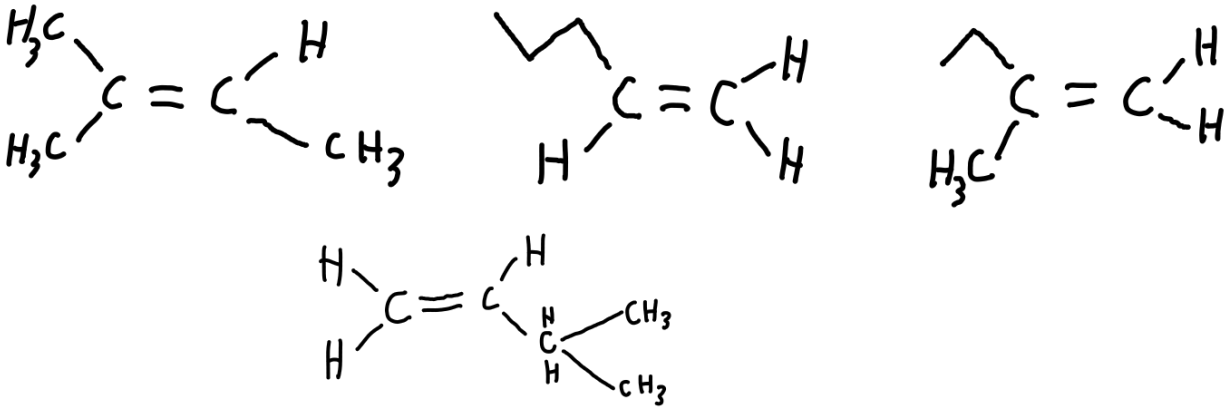


4. Which of the following compounds can exist as cis-trans isomers? For those compounds that can exist as cis and trans isomers, draw and label the isomers. Also, draw the skeletal structures.

1. $CH_3CH{=}CHCH_2CH_2CH_3$
2. $CH_3CH_2C{=}CHCH_3$ (with CH_2CH_3 branch)
3. $CH_3CH{=}CHCH_3$
4. $CH_3CH_2CH{=}CH_2$



5. Draw four compounds with the formula C_5H_{10} that have a carbon-carbon double bond but do not have Cis-trans isomers.

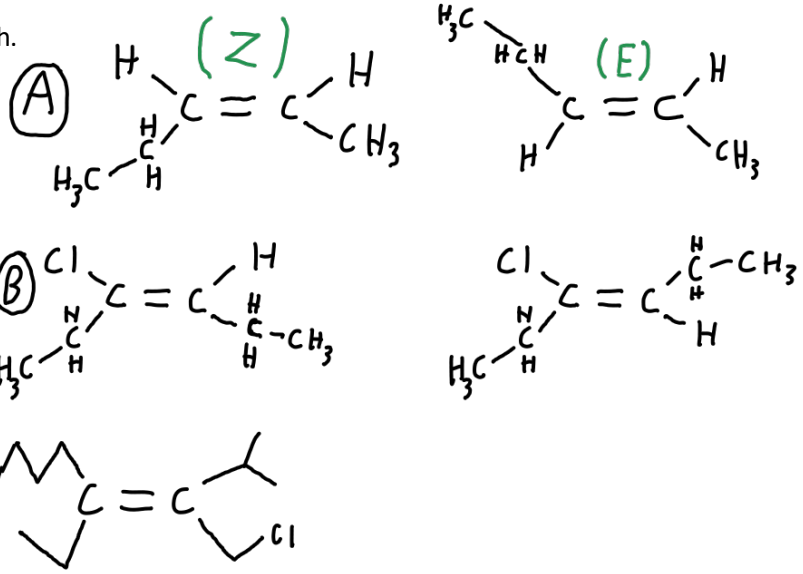


6. Draw and label the E and Z form for each.

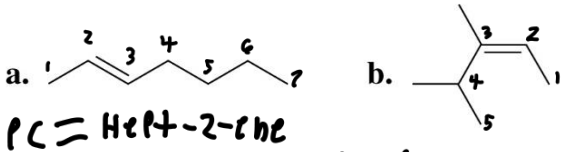
a. $CH_3CH_2CH{=}CHCH_3$

b. $CH_3CH_2C{=}CHCH_2CH_3$ (Cl on the C bearing the first CH_2)

c. $CH_3CH_2CH_2CH_2$ / $CH_3CH_2C{=}CCH_2Cl$ / CH_3CHCH_3



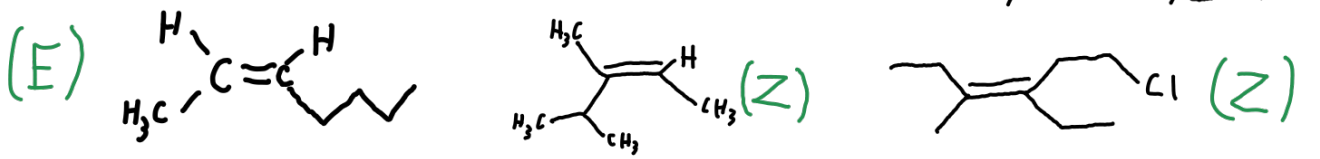
7. Use E and Z notation to name the following:



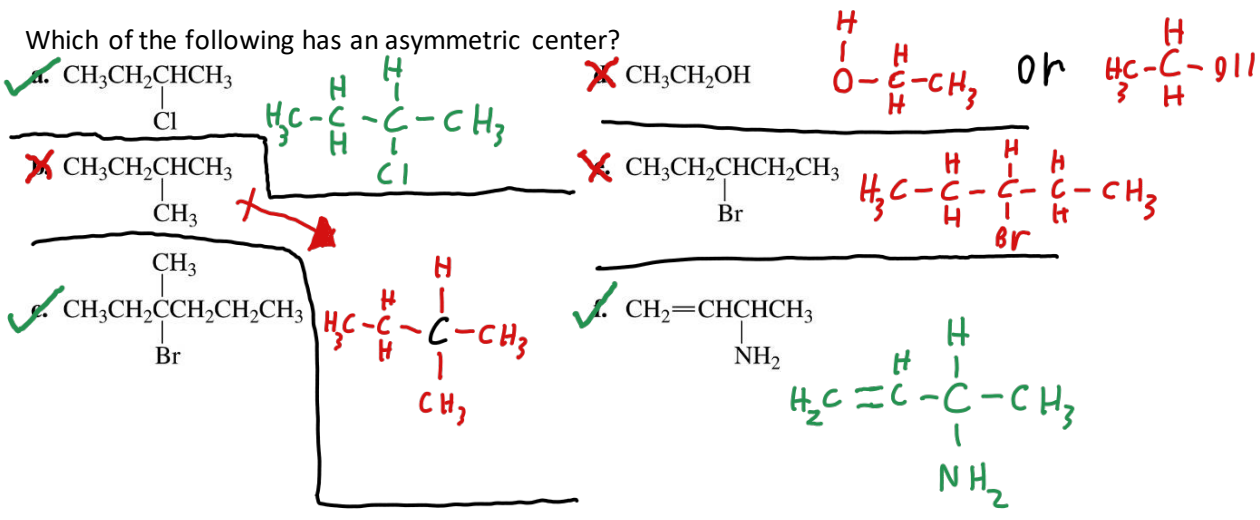
a. PC = Hept-2-ene

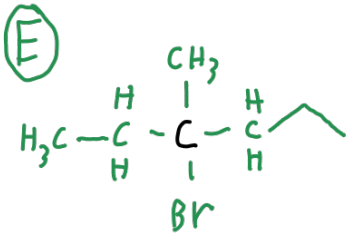
b. PC: pent-2-ene
Sub: 3,4-dimethyl

c. PC: Hex-3-ene
Sub: 4-methyl / 3-ethyl / 1-chloro



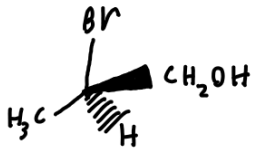
8. Which of the following has an asymmetric center?

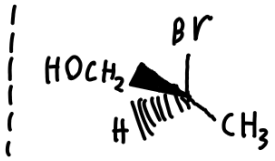


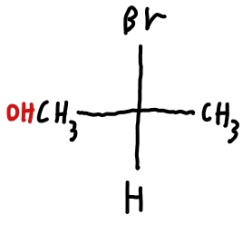


9. Draw the enantiomers using a) perspective diagrams and b) Fischer diagrams for:

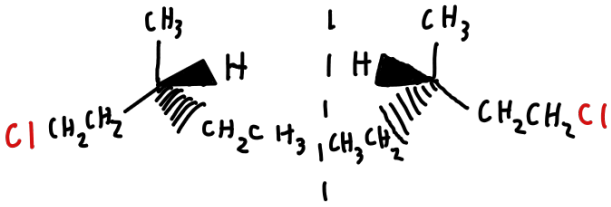
1. CH_3CHCH_2OH (Br)

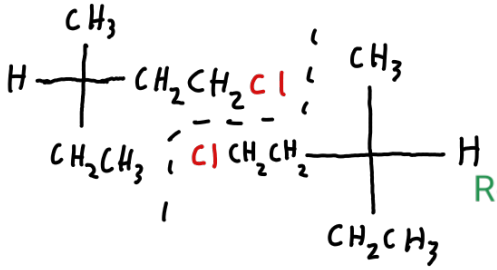




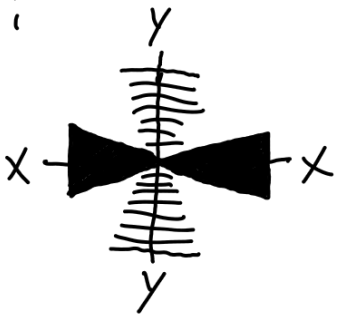


2. $ClCH_2CH_2CHCH_2CH_3$ (CH_3)

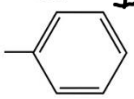




Remember:

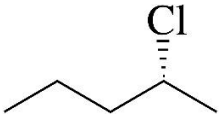


10. Assign priorities to the following sets.

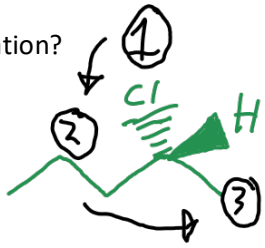
		1	3	4	2
A	a.	$-CH_2OH$	$-CH_3$	$-H$	$-CH_2CH_2OH$
C	b.	$-CH_2Br$ 2	$-OH$ 1	$-CH_3$ 4	$-CH_2OH$ 3
B	c.	$-CH(CH_3)_2$ 2	$-CH_2CH_2Br$ 3	$-Cl$ 1	$-CH_2CH_2CH_2Br$ 4
D	d.	$-CH{=}CH_2$ 2	$-CH_2CH_3$ 3	 1	$-CH_3$ 4

Fischer

11. Does the following have R or S configuration?

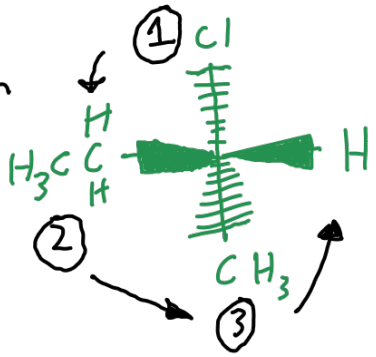


R



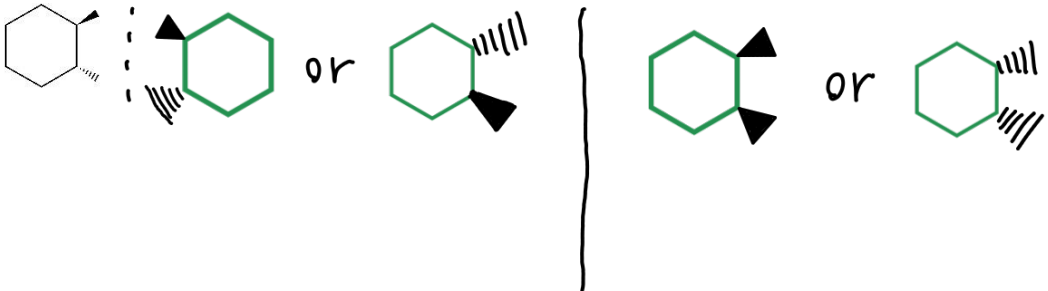
S → R

or

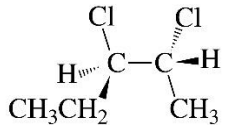


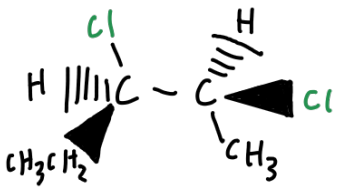
S → R

12. Draw an enantiomer and a diastereomer for the following compound.

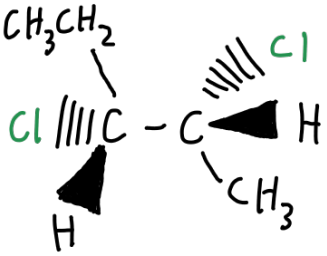


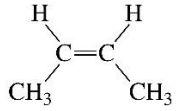
13. Draw a diastereomer for each of the following.

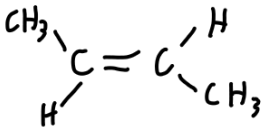
b. 



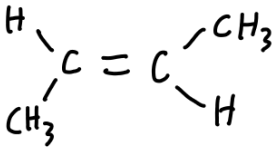
or



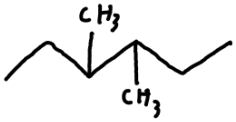
c. 

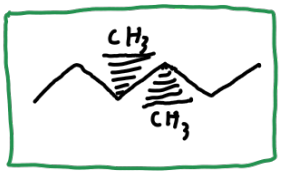


or



14. Draw the meso compound for 3,4-dimethylhexane.





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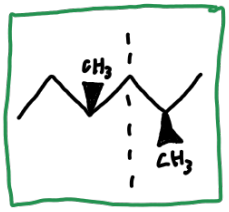
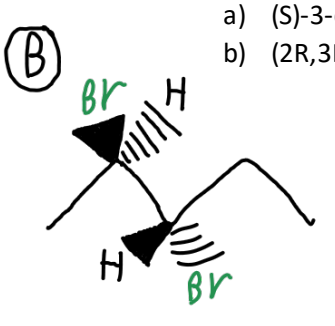
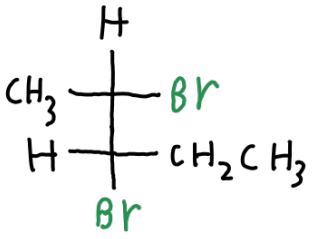
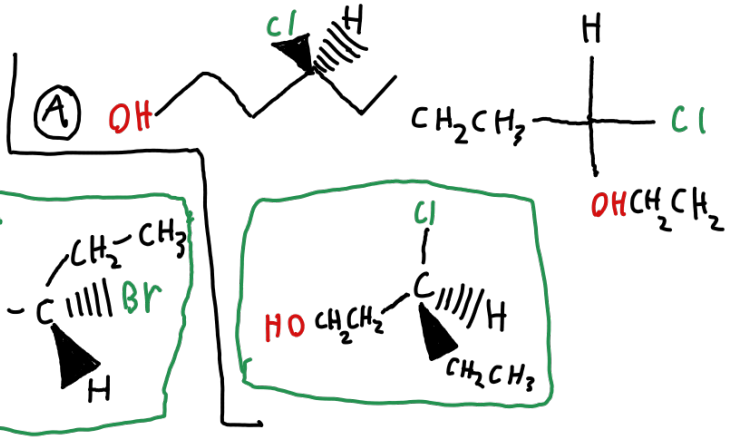


15. Draw the perspective diagram for:

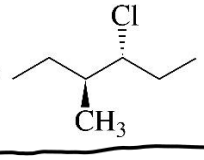
a) (S)-3-chloro-1-pentanol
b) (2R,3R) 2,3-dibromopentane

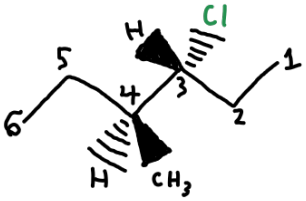


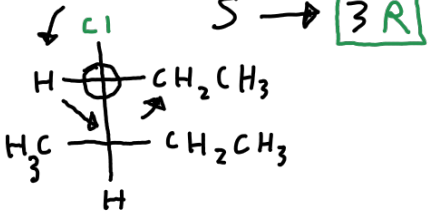


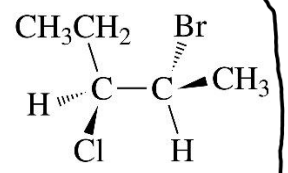


16. Name the following:

a. 

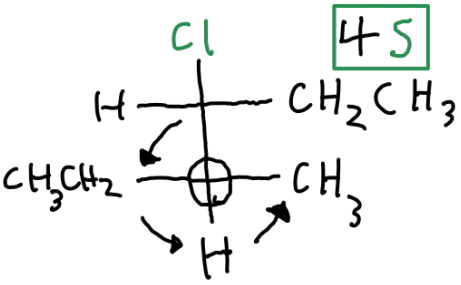




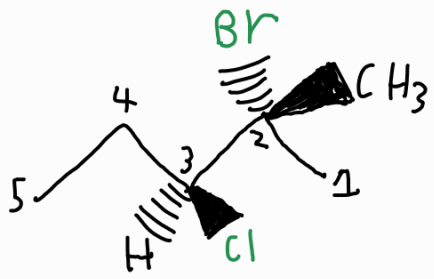
b. 

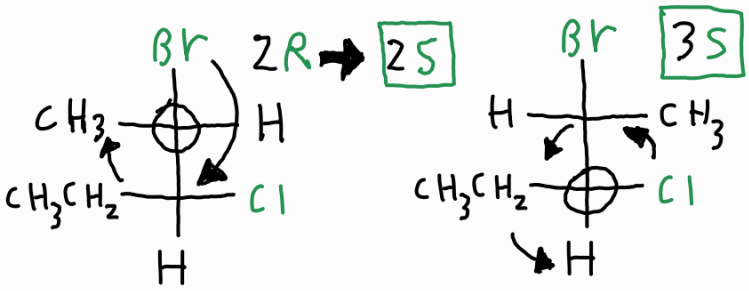
PC: Hexane

Sub: 3-chloro/4-methyl



(B)





PC: pentane

SUB: 2-bromo/3-chloro

Remember: