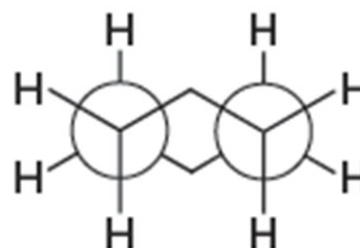
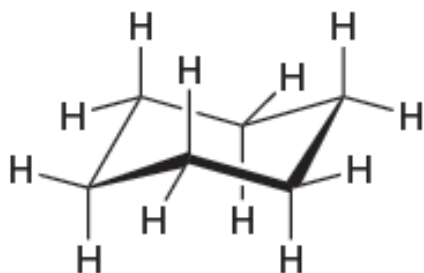
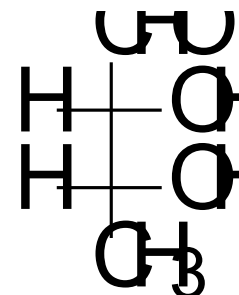
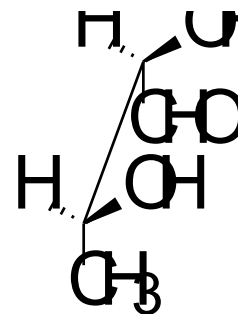
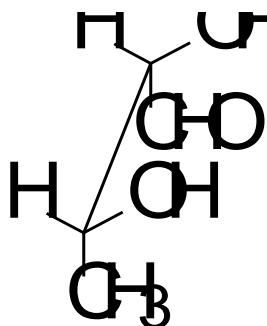
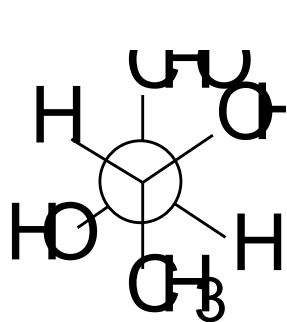


# STEREOCHEMIE



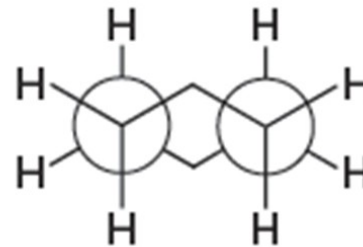
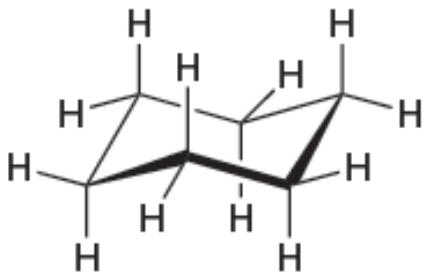
# Typy vzorců

Následující vzorec v Newmanově projekci přepište do Fischerovy projekce

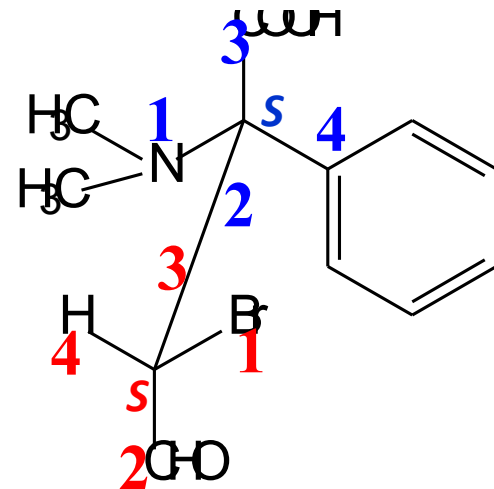
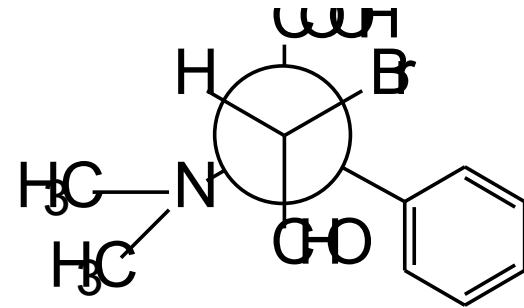
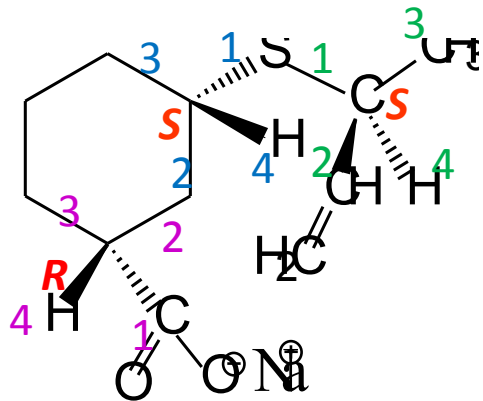


# Typy vzorců

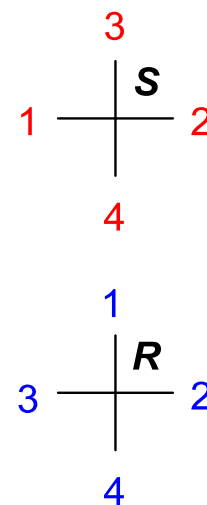
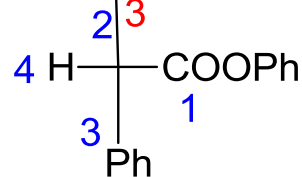
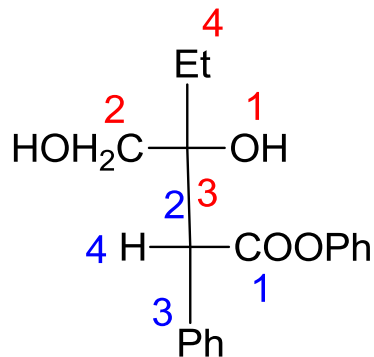
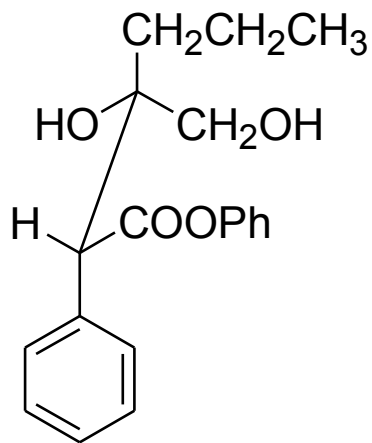
Molekulu cyklohexanu překreslete do Newmanovy projekce



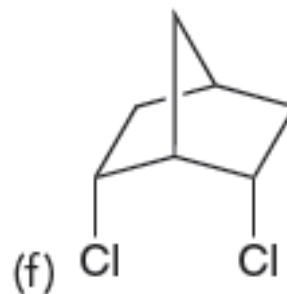
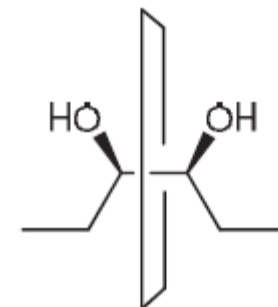
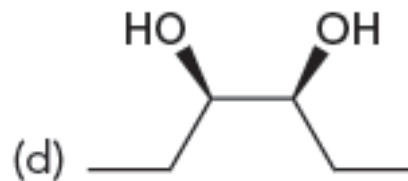
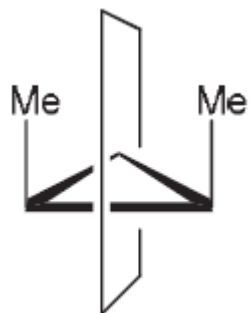
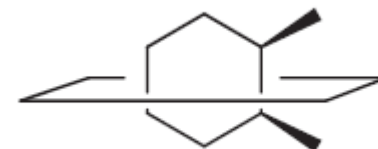
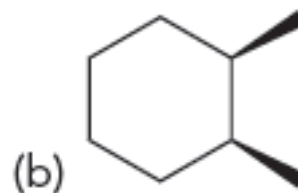
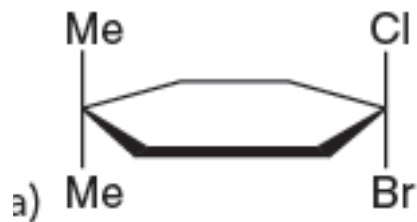
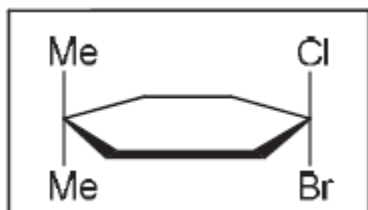
# Označte centra chirality a určete na nich absolutní konfiguraci



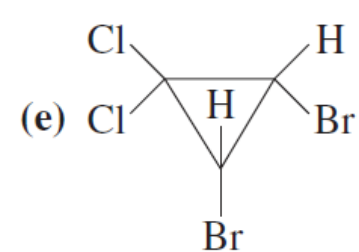
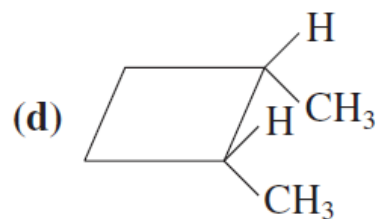
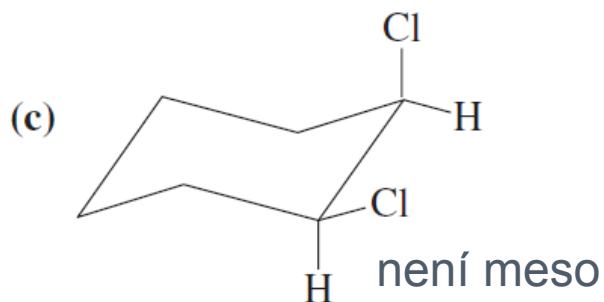
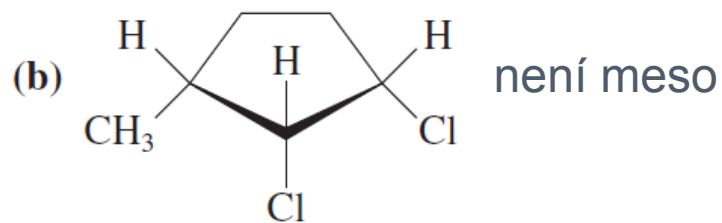
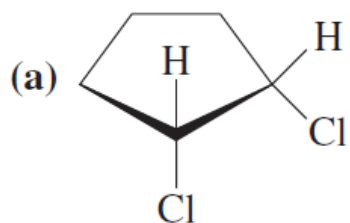
U následující sloučeniny identifikujte centra chiralit a určete na nich absolutní konfiguraci



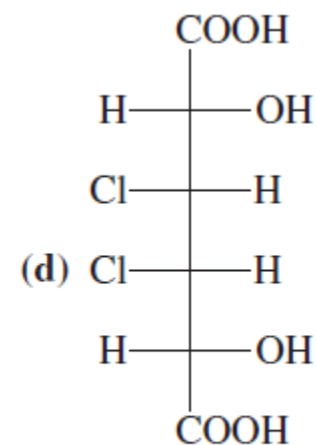
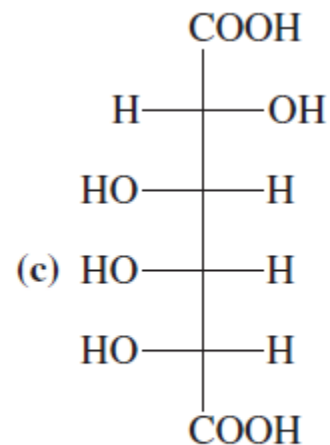
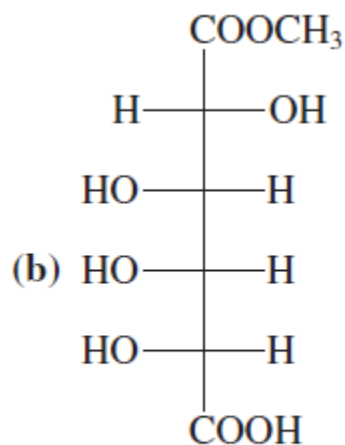
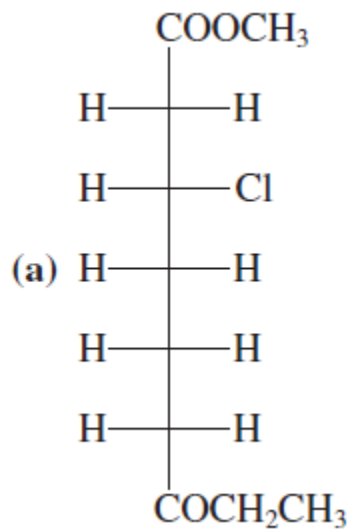
# Najděte rovinu symetrie u následujících sloučenin



## Která ze sloučenin není *meso* - sloučeninou



## Která ze sloučenin nebude opticky aktivní



Opticky aktivní není **d**





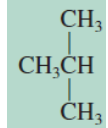
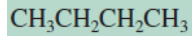
# IZOMERY

různě navázané atomy  
stejný sumární vzorec

stejně navázané atomy  
různé prostorové uspořádání

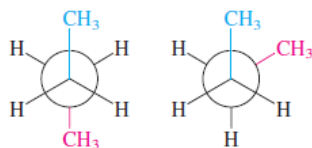
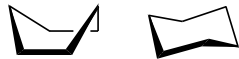
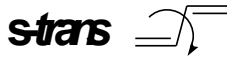
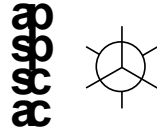
**KONSTITUČNÍ  
IZOMER**

- řetězový
- pohybový
- skupinový



**STEREOIZOMER**

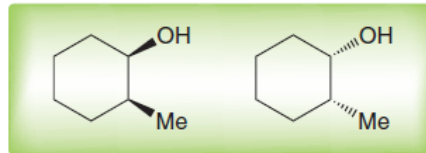
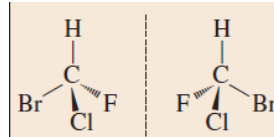
**KONFORMER**



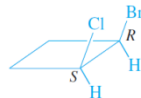
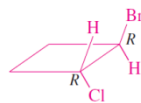
jiná  
konfigurace

**EVANTIOMER**

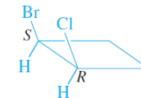
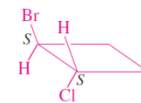
zrcadlový obraz



1R, 2S

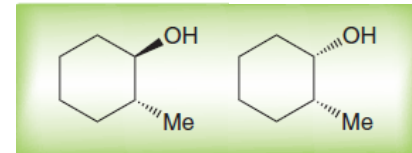
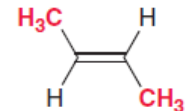
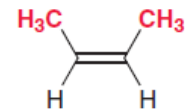


1S, 2R



**DIASSTEREOMER**

není zrcadlovým  
obrazem

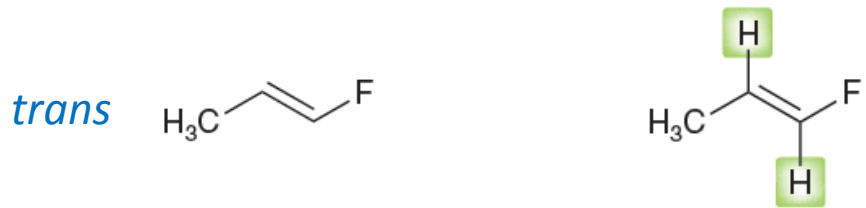


1R, 2R

1S, 2R



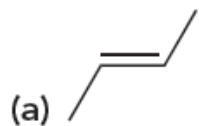
# » Geometrické izomery



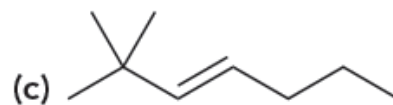
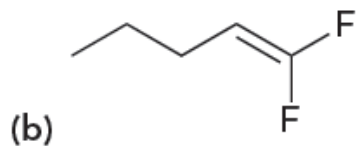
stejné



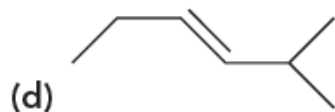
Kde je to potřeba, určete, o jaký stereoizomer se jedná (*cis - trans, E - Z*)



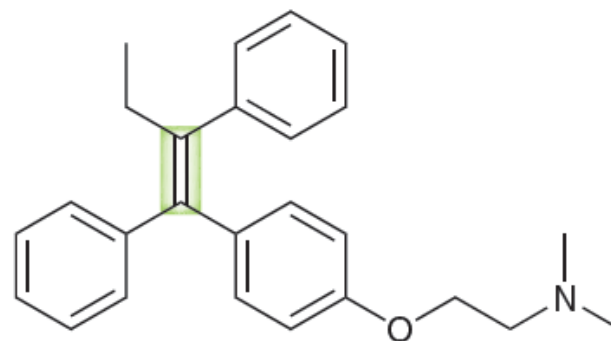
*trans*



*trans (E)*



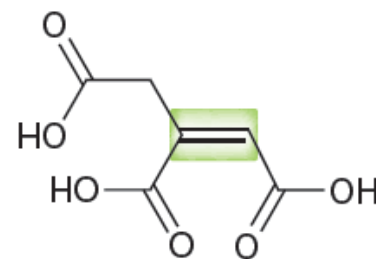
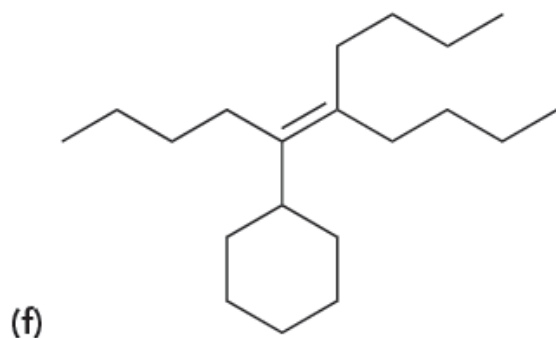
*trans (E)*



**Tamoxifen**

Used in treatment of breast cancer

*trans (Z)*



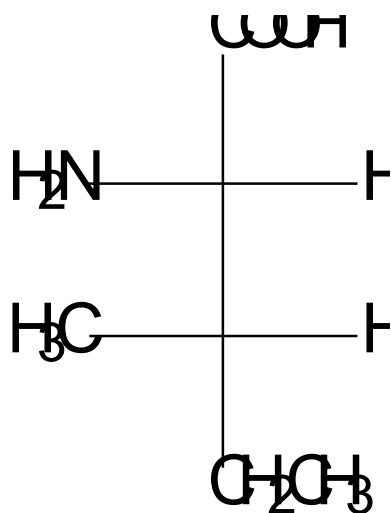
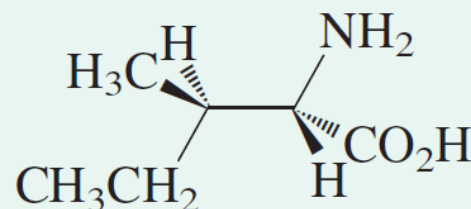
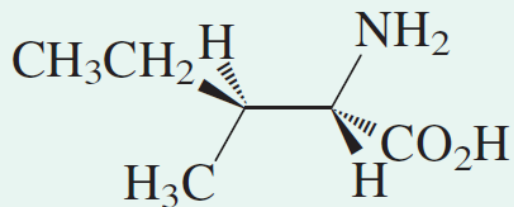
**Aconitic acid**

Involved in metabolism

*cis (Z)*

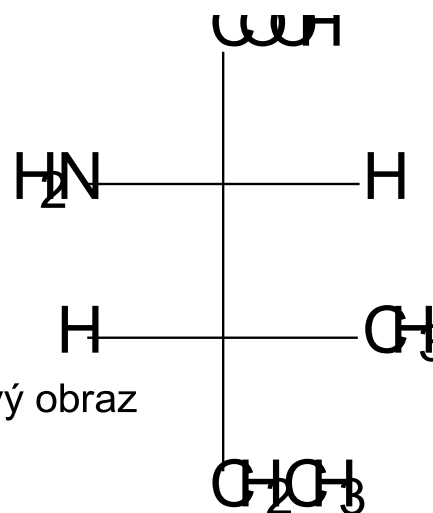


Uvedené sloučeniny překreslete do Fischerovy projekce a určete, jaký je mezi nimi stereochemický vztah



stejně

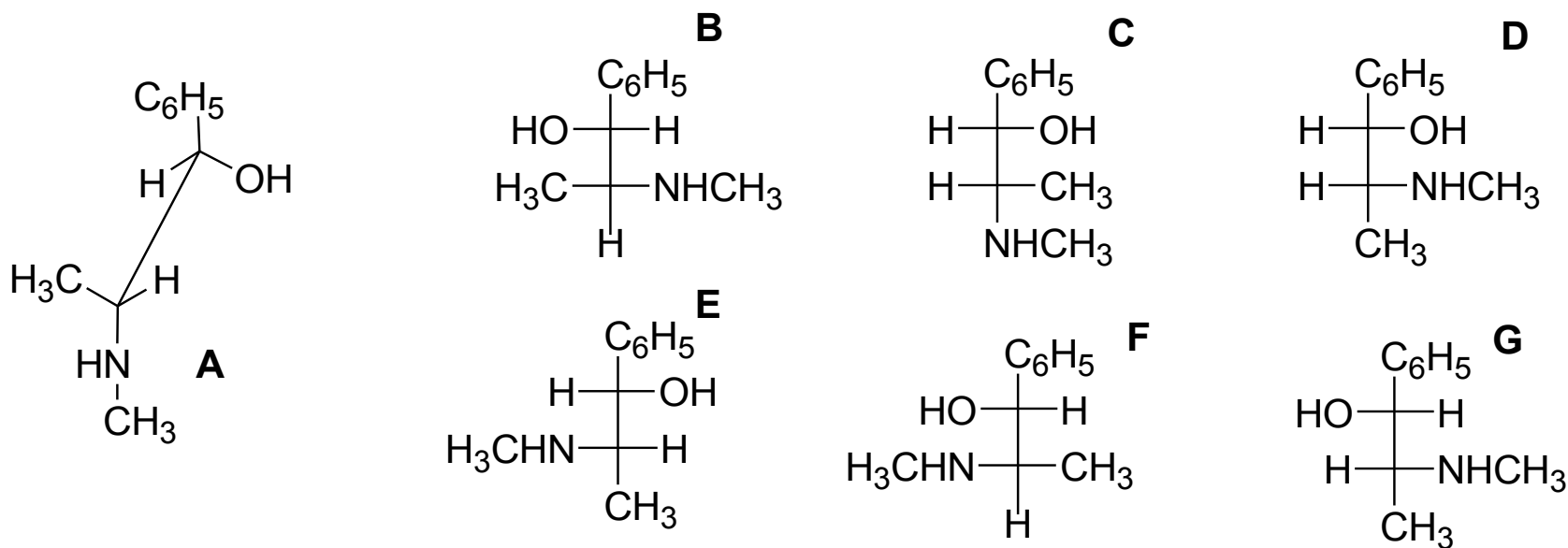
zrcadlový obraz



diastereomery



Efedrin (A) se používá jako lék, která z uvedených projekcí odpovídá Fischerově projekci látky (A). Vytvořte systematický název efedrinu včetně určení absolutní konfigurace na centrech chiralidy.

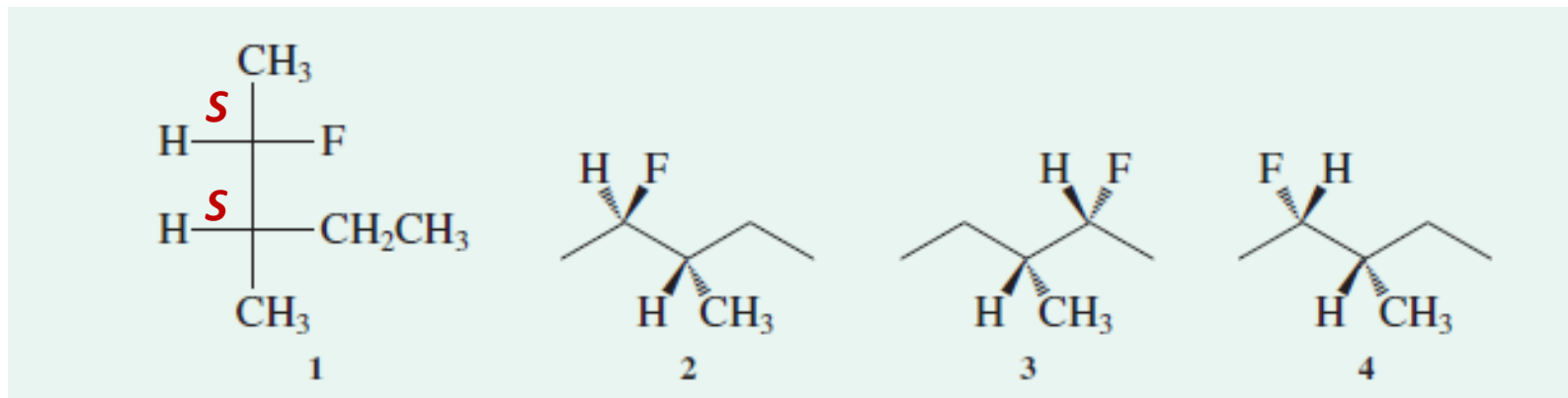


Vzorce **F** a **G**

**(1*R*,2*R*)-1-fenyl-2-(*N*-methylamino)propanol**



Jaký je vzájemný stereochemický vztah mezi uvedenými sloučeninami



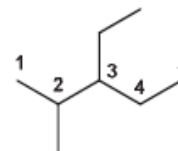
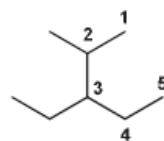
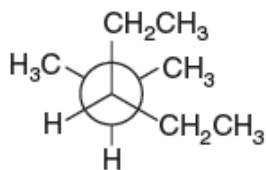
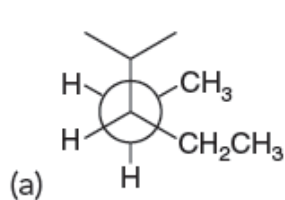
1 - 2 diastereomery

1 - 3 enantiomery

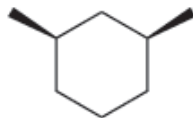
1 - 4 stejná sloučenina



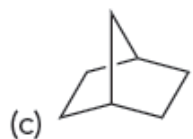
# Určete, jaký je mezi uvedenými sloučeninami vzájemný stereochemický vztah



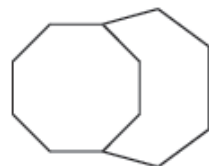
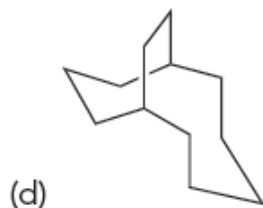
stejně



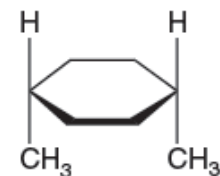
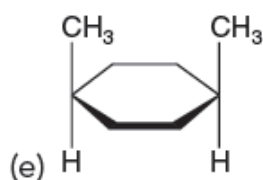
konstituční izomery



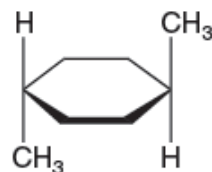
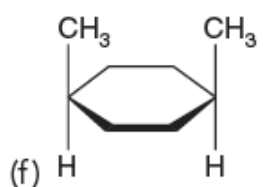
stejně



konstituční izomery

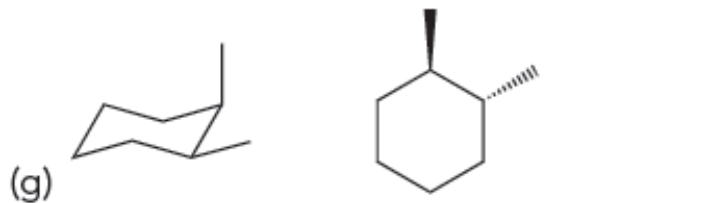


stejně

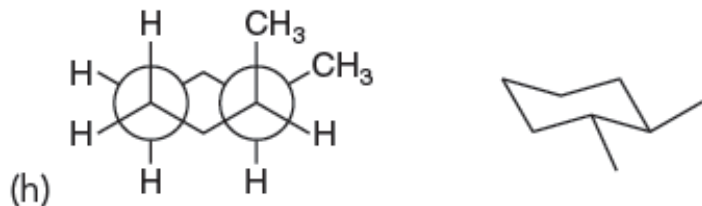


stereoizomery

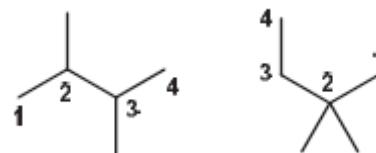
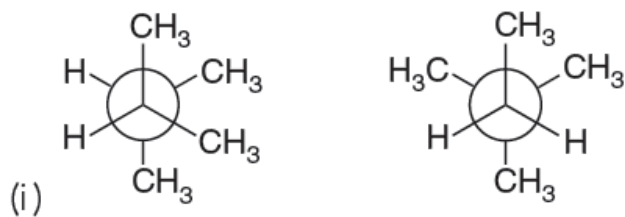




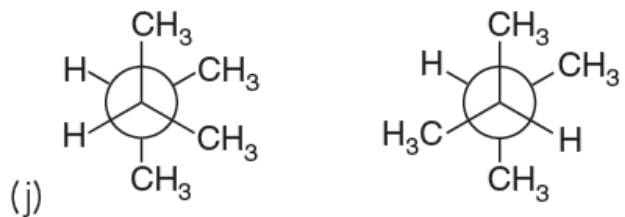
stereoizomery (*cis – trans*, diastereomery)



stereoizomery (*cis – trans*, diastereomery)



konstituční izomery



konformace téže sloučeniny



stereoizomery (*cis – trans*, diastereomery)

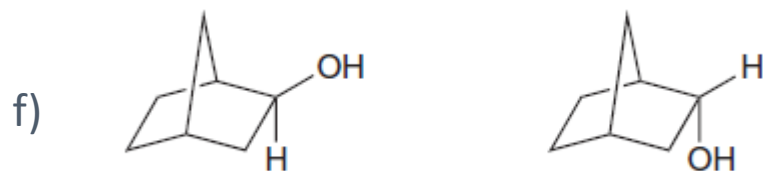
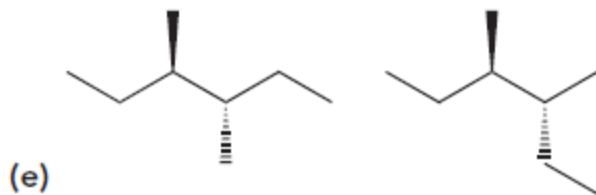
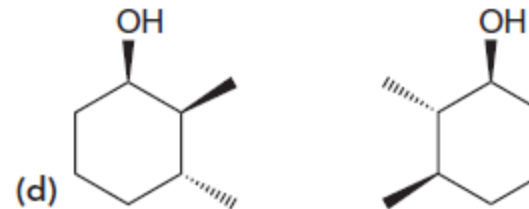
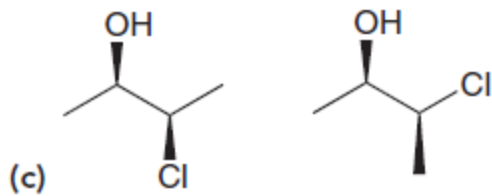


konstituční izomery





Určete, zda v uvedených párech jsou sloučeniny vzájemně enantiomery nebo diastereomery



a) enantiomery

b) diastereomery

c) diastereomery

d) diastereomery

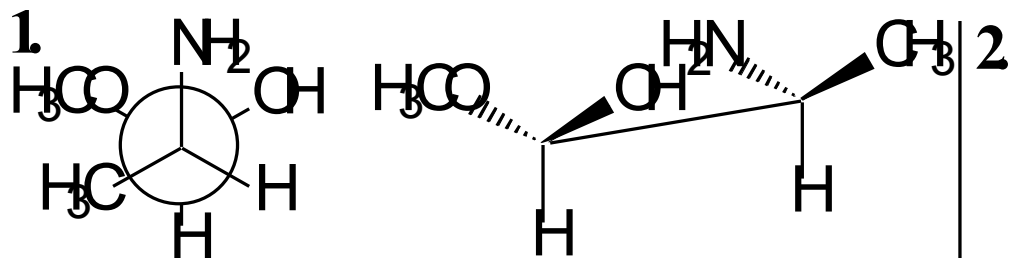
e) diastereomery

f) diastereomery

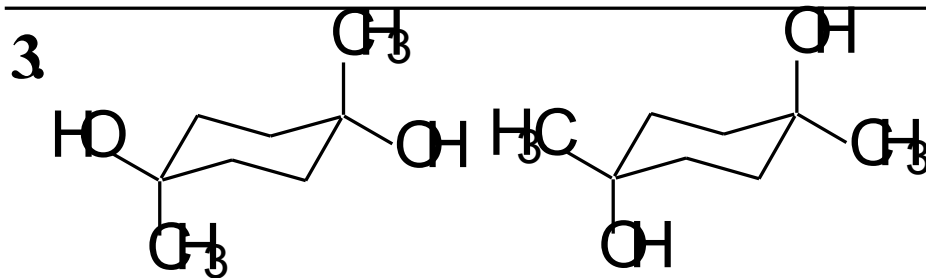
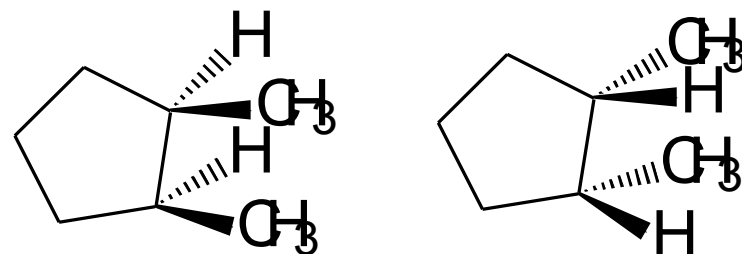


Určete, jaký je mezi uvedenými sloučeninami vzájemný stereochemický vztah

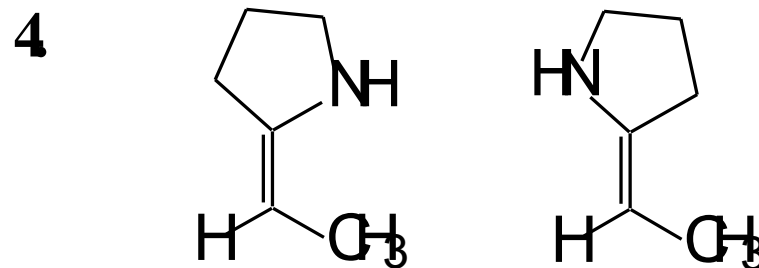
1. diastereomery



2. stejné (*meso*-)



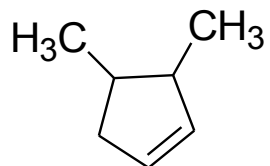
3. konformery



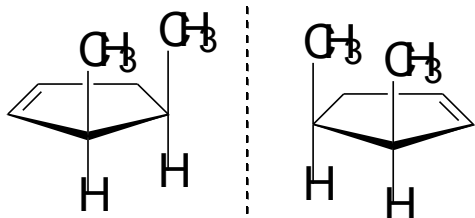
4. diastereomery  
geometrické izomery



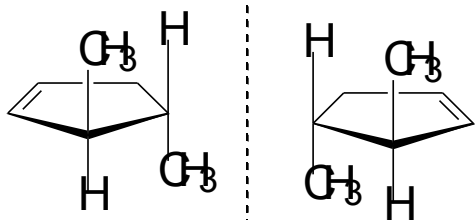
Nakreslete možné stereoizomery uvedených sloučenin. U každé z nich označte, zda otáčí rovinu polarizovaného světla či nikoli.



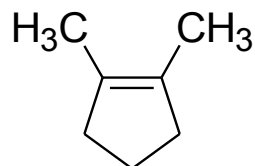
otáčí všechny



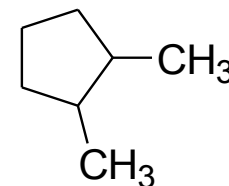
diastereomery



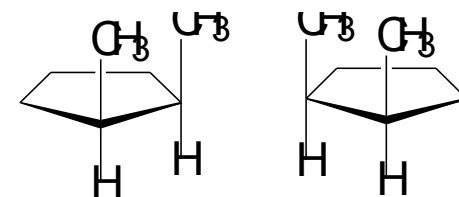
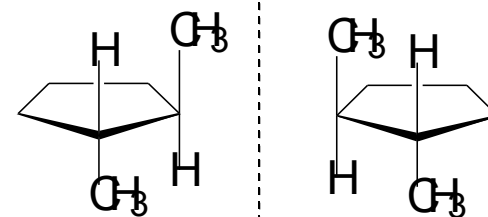
enantiomery



neotáčí



otáčí

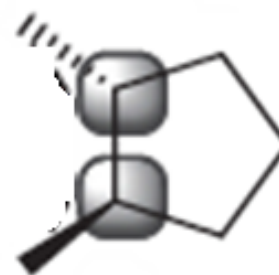
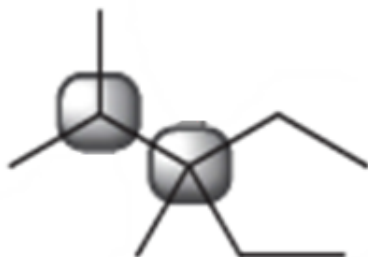
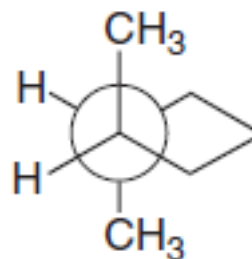
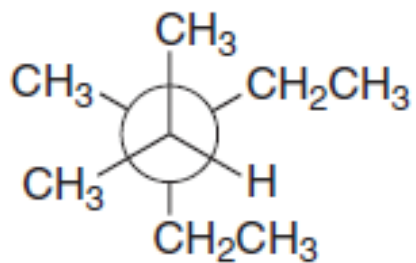


tatožlátko  
meso-sloučenina

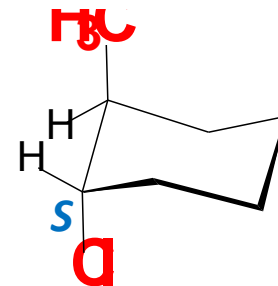
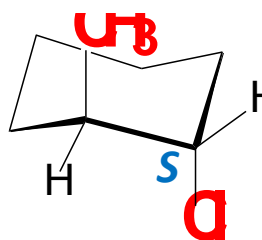
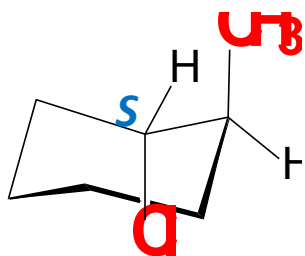
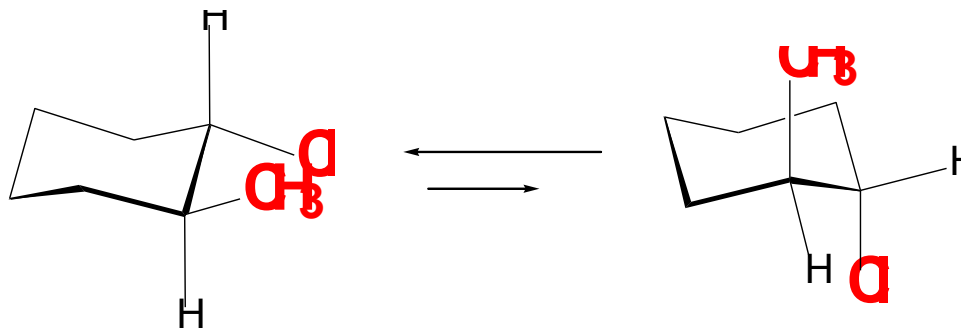
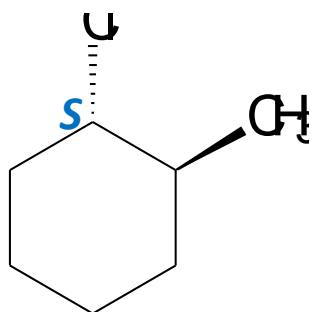
neotáčí



## Nakreslete strukturální vzorce uvedených sloučenin

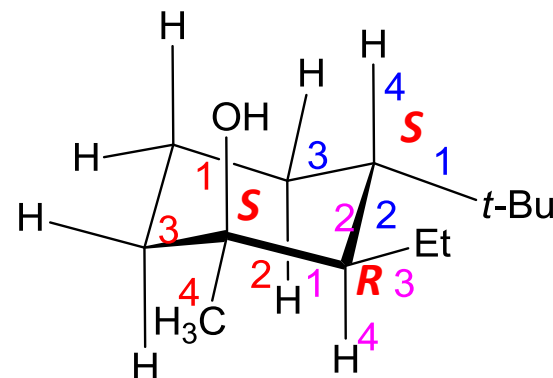
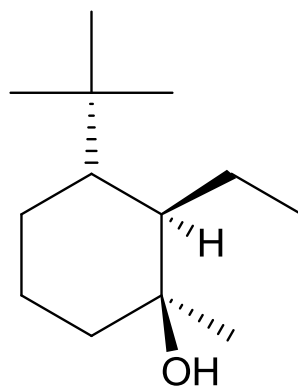
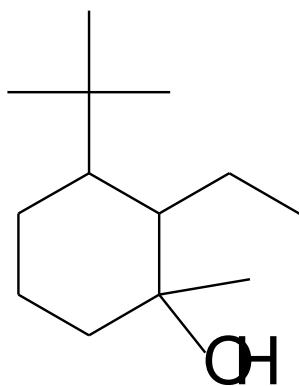


Uvedenou sloučeninu nakreslete v její nejstabilnější konformaci

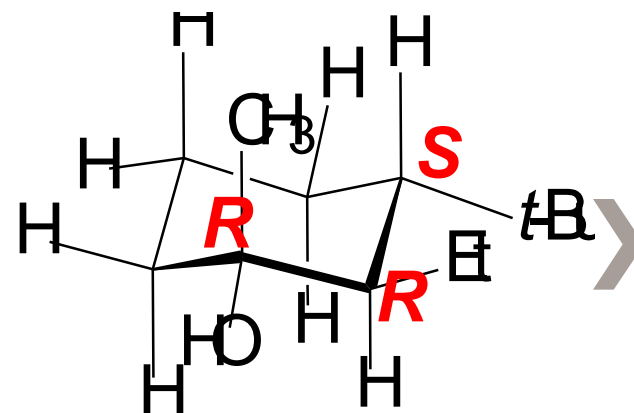


Níže uvedenou sloučeninu nakreslete v její nejstabilnější konformaci

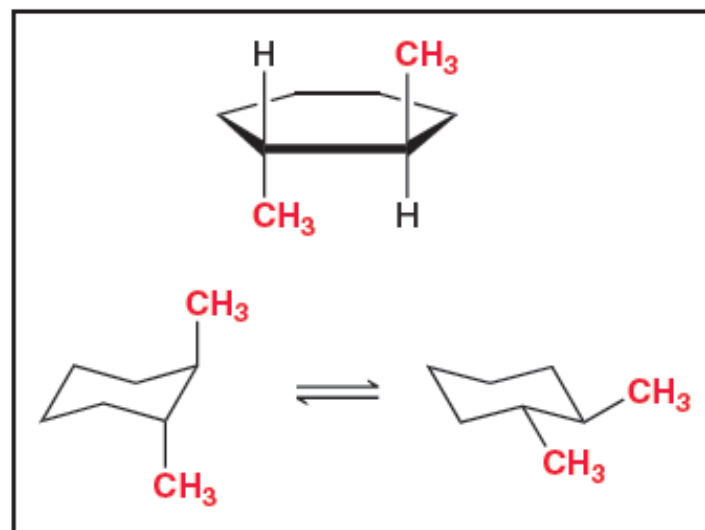
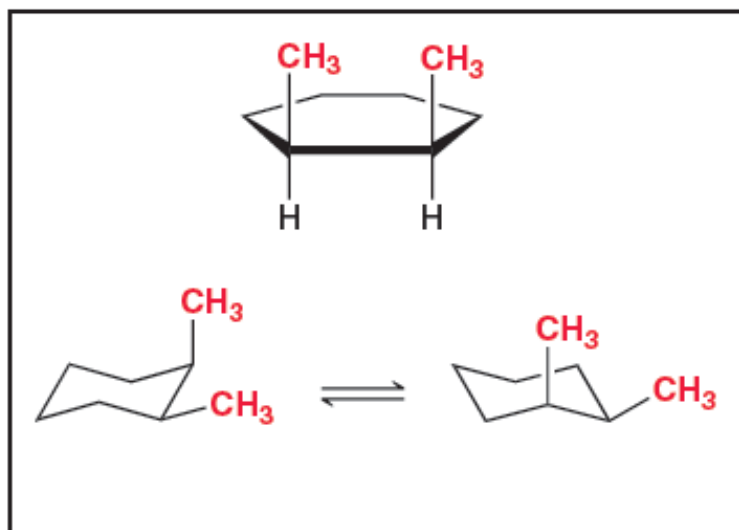
**(1*R*,2*R*,3*S*)-3-*tert*-butyl-2-ethyl-1-methylcyklohexanol**



- 1) Nakreslíme strukturní vzorec sloučeniny
- 2) Libovolně umístíme substituenty, *t*-Bu umístíme do ekvatoriální pozice, neboť nejstabilnější konformace preferuje objemný substituent v ekv. pozici
- 3) Určíme abs. konfiguraci
- 4) Na uhlíku C1 prohodíme dva substituenty, neboť dle zadání má být abs. konfigurace *R* a nám vyšla *S*



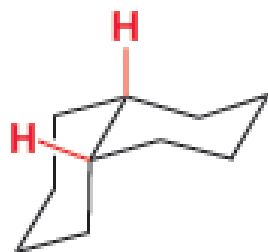
Určete, který ze dvou možných geometrických izomerů 1,2-dimethylcyklohexanu je termodynamicky stabilnější?



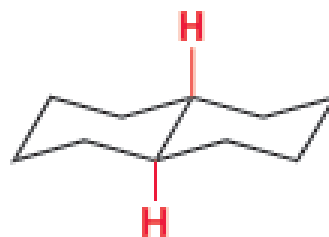
Může zaujmout konformaci, v níž je diekvatoriální pozice obou objemných substituentů



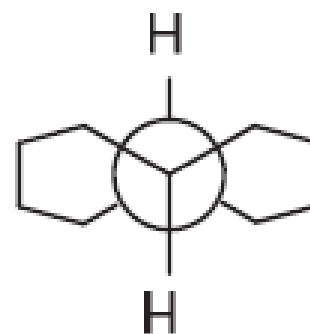
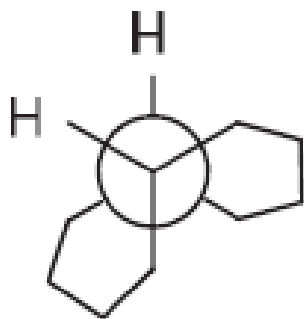
Určete, který ze dvou možných geometrických izomerů dekalinu je termodynamicky stabilnější?



*cis*-Decalin



*trans*-Decalin

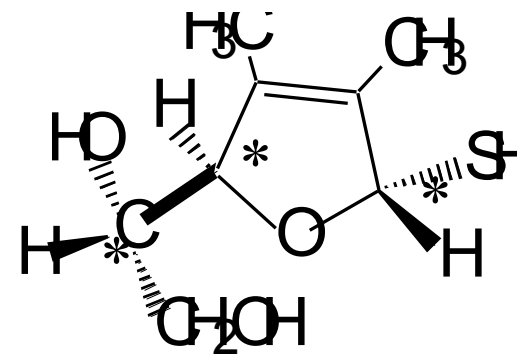
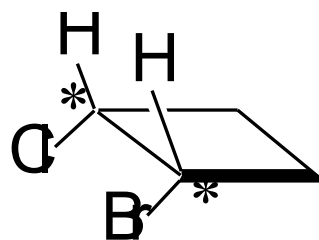
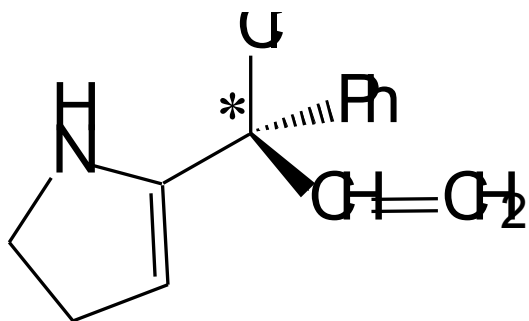


*trans*- dekalin je stabilnější – pouze 2 gauche interakce (*cis* má 3)

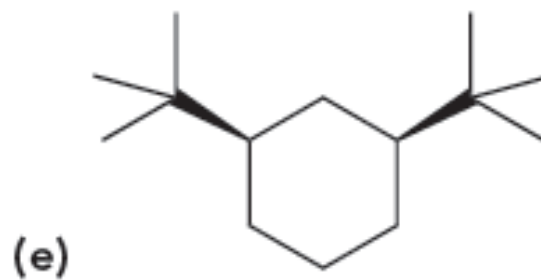
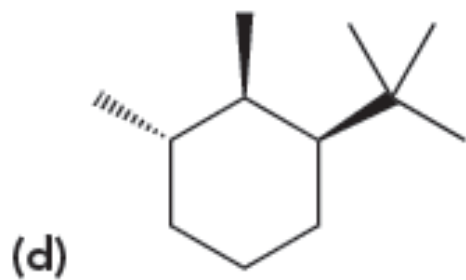
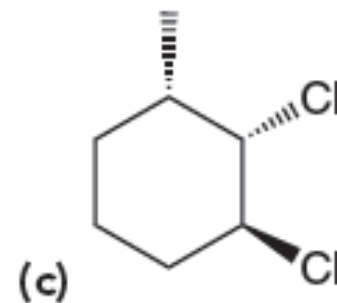
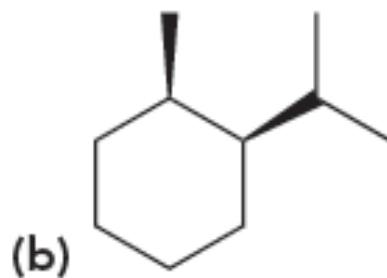
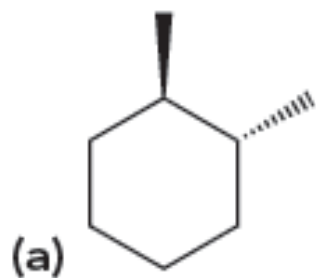




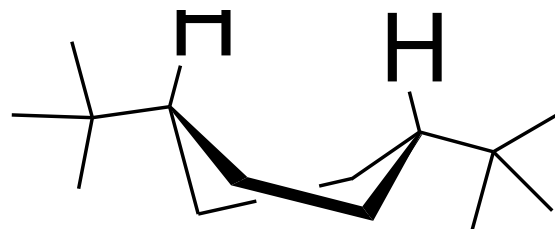
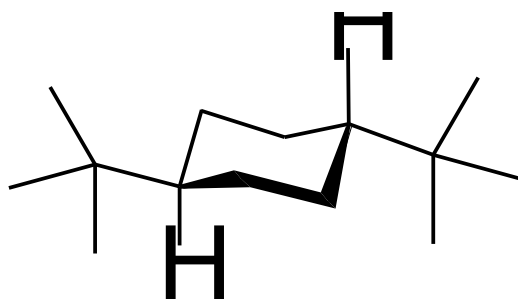
Na vyznačených centrech chirality určete absolutní konfiguraci



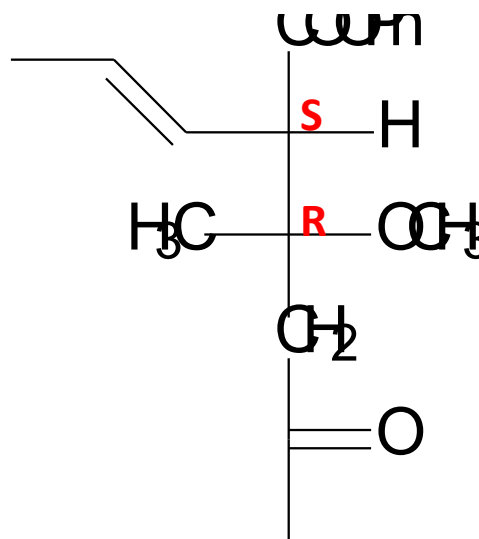
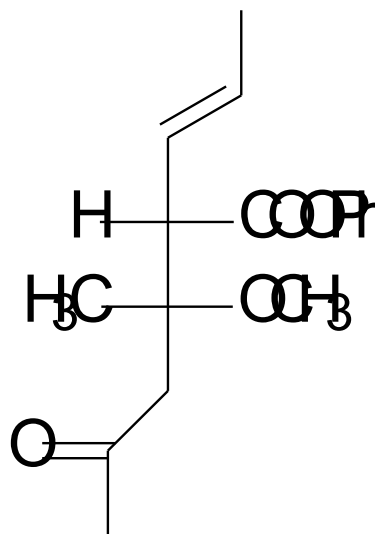
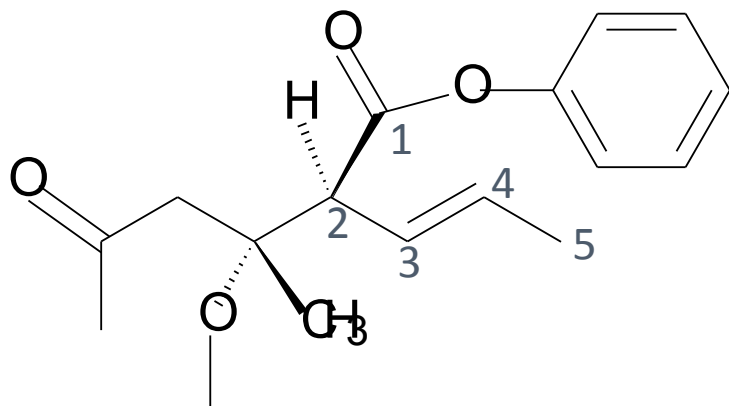
# Nakreslete nejstabilnější konformaci uvedených sloučenin



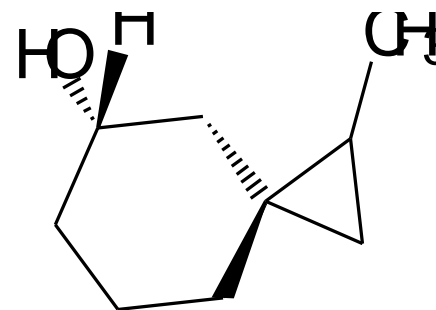
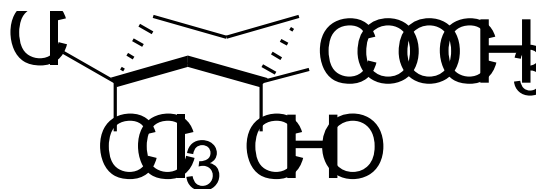
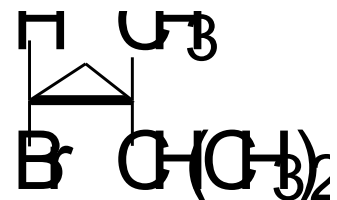
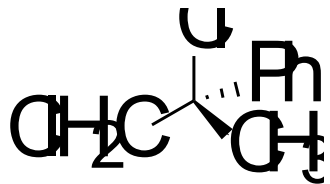
Která ze sloučenin se nachází přednostně v židličkové konformaci a která v twist formě?



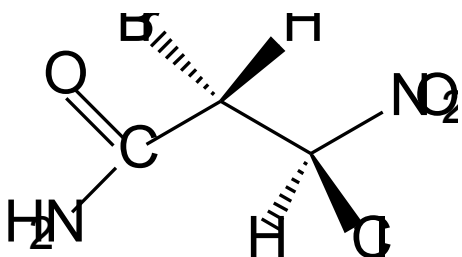
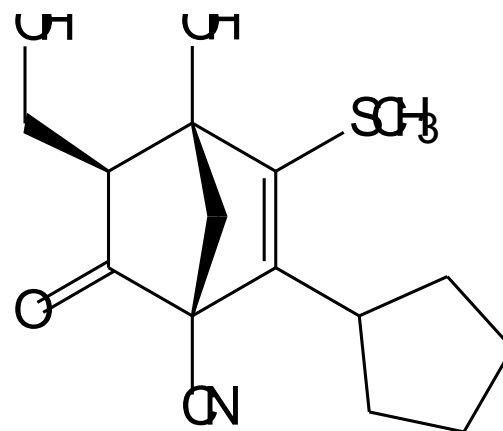
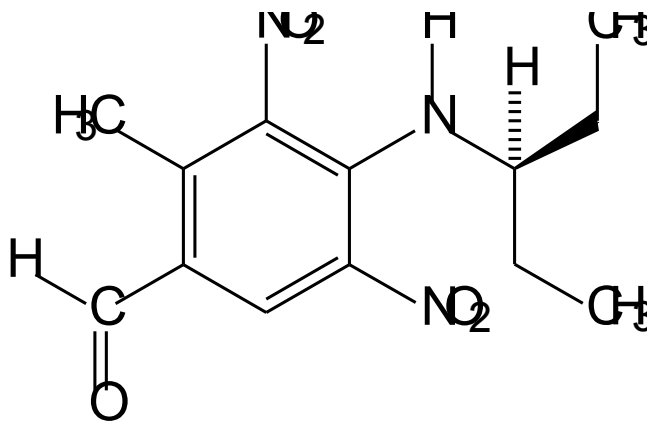
Molekulu překreslete do Fischerovy projekce a určete absolutní konfiguraci na centrech chiralit



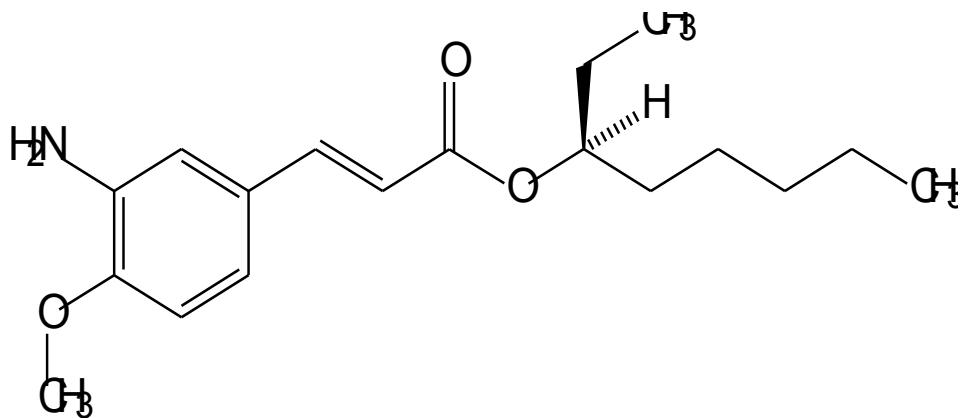
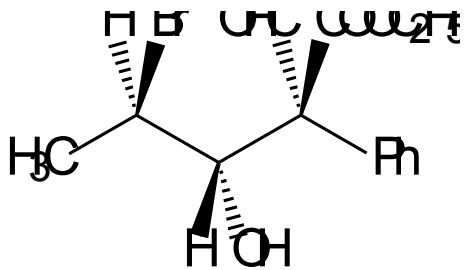
Označte \* centra chiralit a určete na nich absolutní konfiguraci



Následující sloučeniny systematicky pojmenujte včetně užití deskriptorů pro prostorové uspořádání molekul (označení konfigurace)



Následující sloučeniny systematicky pojmenujte včetně užití deskriptorů pro prostorové uspořádání molekul (označení konfigurace)



## Nakreslete vzorce následujících sloučenin včetně znázornění prostorového uspořádání

(2*S*,3*E*)-1-(*N*-fenylamino)-5,5-diethoxyhex-3-en-2-ol

(5*R*,3*Z*)-4-brom-3-cyklopentyl-5-methylhept-3-en-2,6-dion

