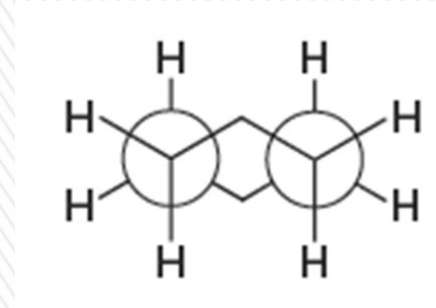
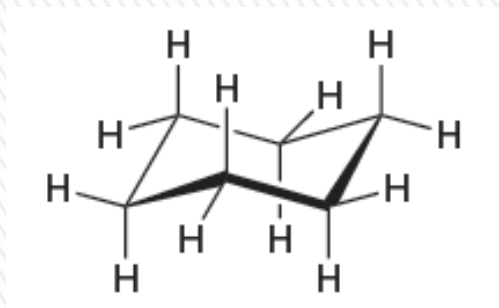
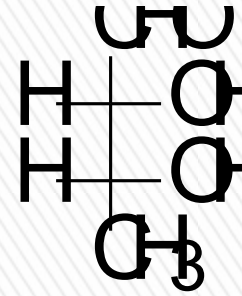
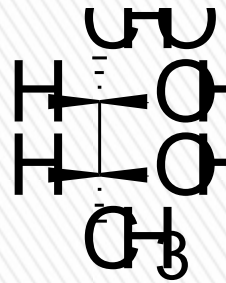
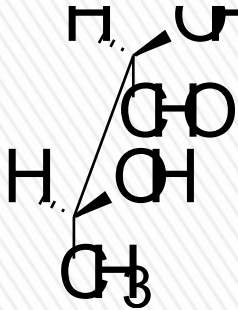
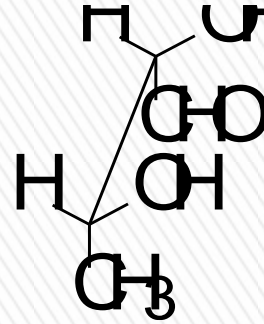
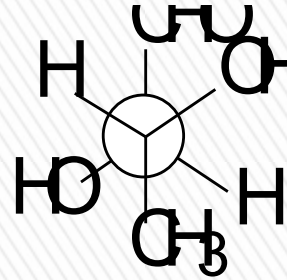


STEREOCHEMIE >>>

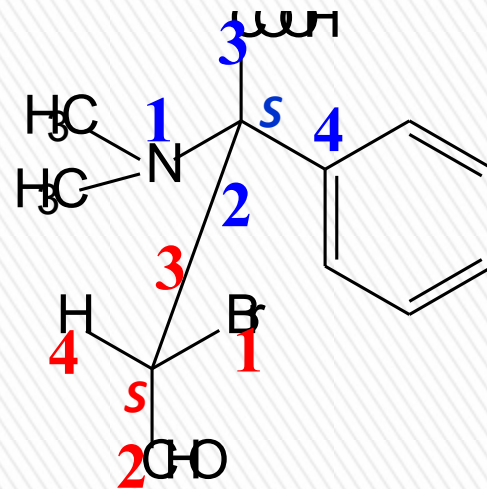
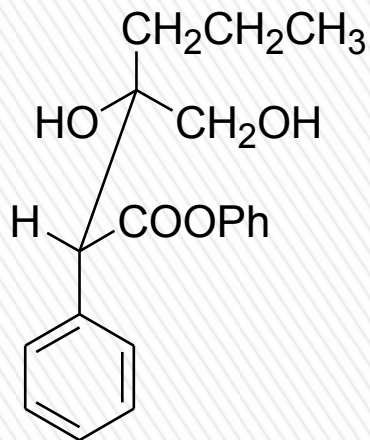
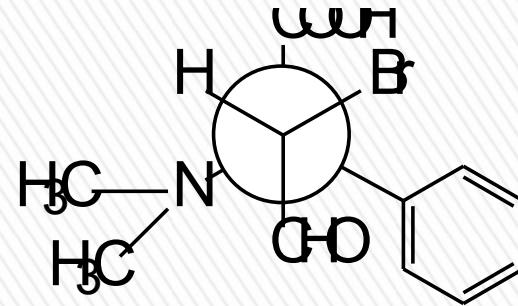
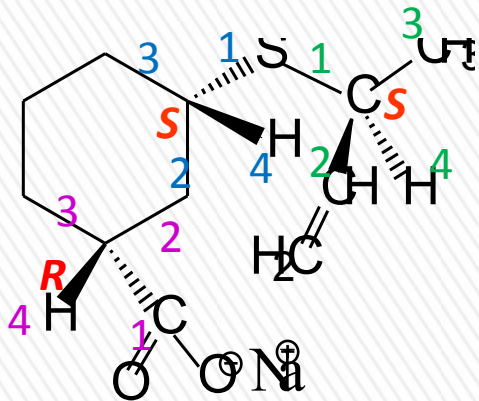


Houses of edible snails: the ratio of right-handed (on the left) to left-handed is 20,000:1.

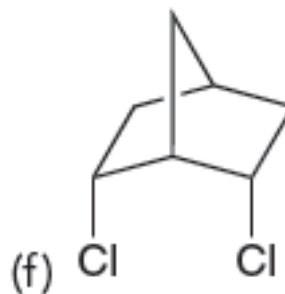
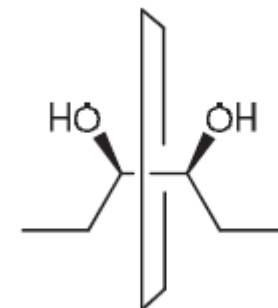
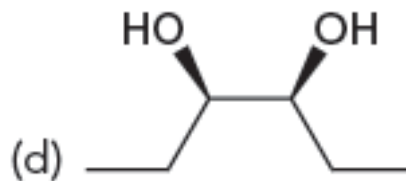
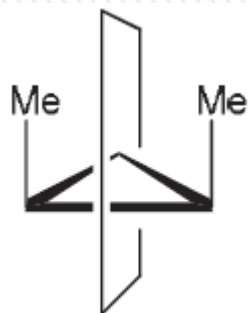
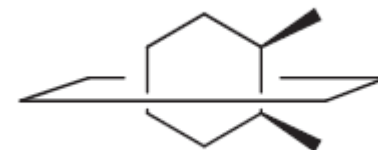
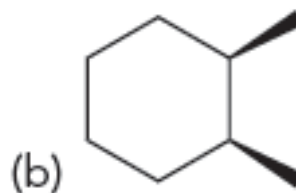
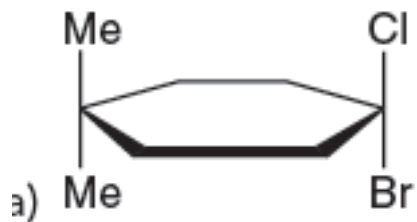
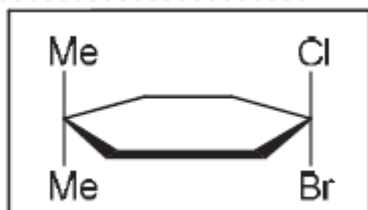
Typy vzorců



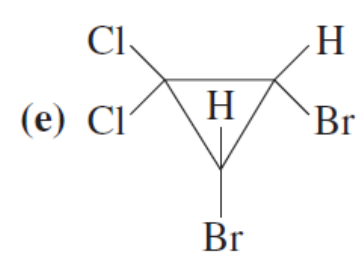
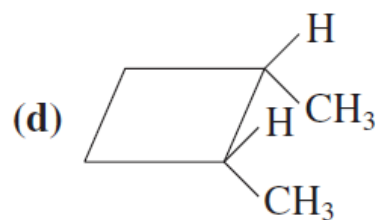
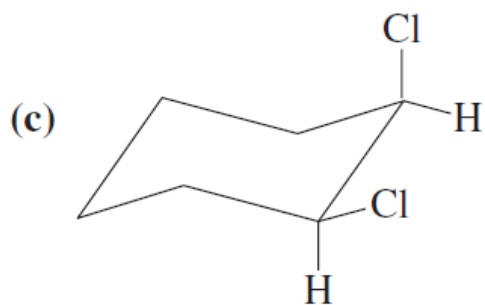
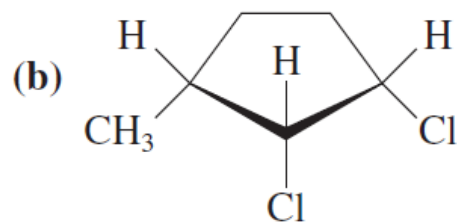
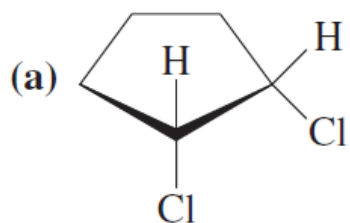
Označte * centra chirality a určete na nich absolutní konfiguraci



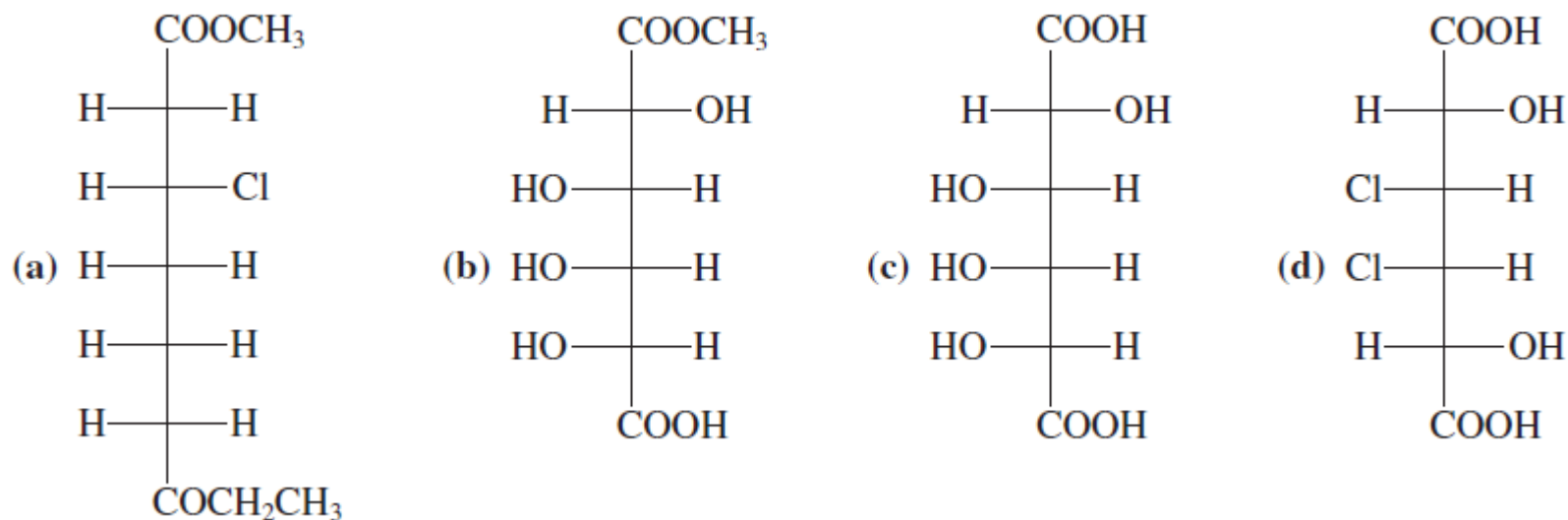
Najděte rovinu symetrie u následujících sloučenin



Která ze sloučenin není *meso* - sloučeninou



Která ze sloučenin nebude opticky aktivní



Opticky aktivní není **d**



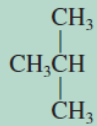
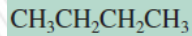
IZOMERY

různě navázané atomy
stejný sumární vzorec

stejně navázané atomy
různé prostorové uspořádání

**KONSTITUČNÍ
IZOMER**

- řetězový
- pohybový
- skupinový



STEREOIZOMER

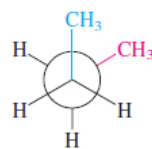
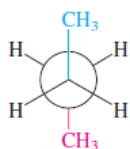
KONFORMER



sas



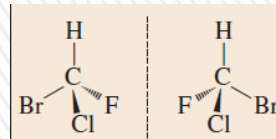
stars



jiná
konfigurace

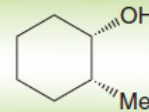
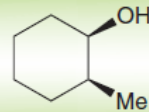
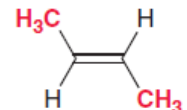
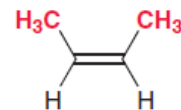
EVANTIOMER

zrcadlový obraz



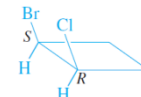
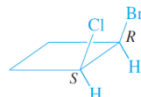
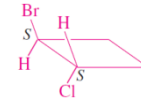
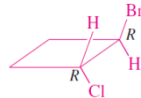
DIAStereoMER

není zrcadlovým
obrazem



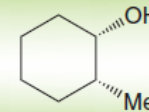
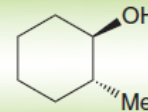
1R, 2S

1S, 2R



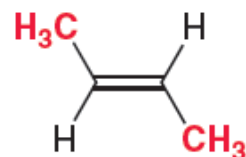
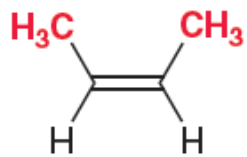
1R, 2R

1S, 2R



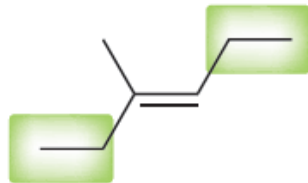
» Geometrické izomery

cis



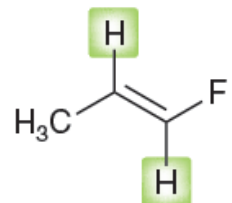
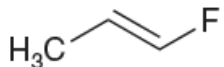
trans

cis



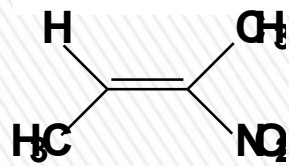
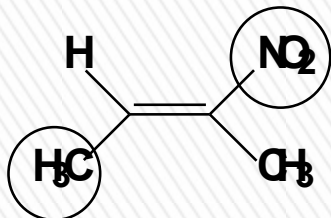
trans

trans



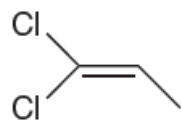
cis

E-

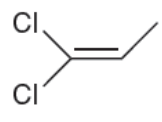


trans

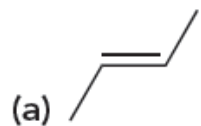
Z-



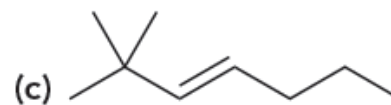
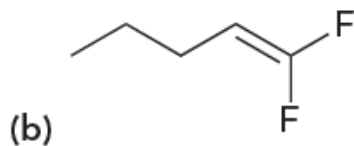
stejné



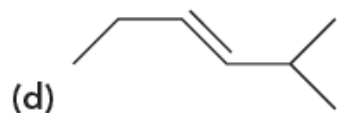
Kde je to potřeba, určete, o jaký stereoizomer se jedná (*cis - trans, E - Z*)



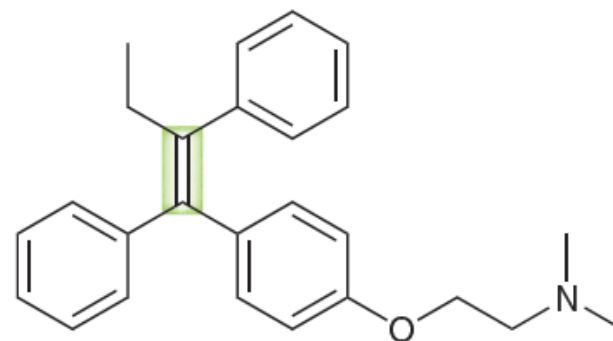
trans



trans (E)



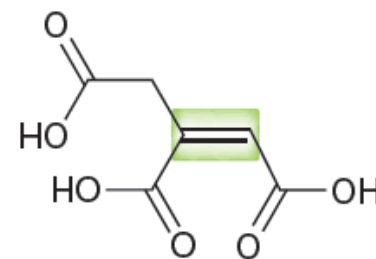
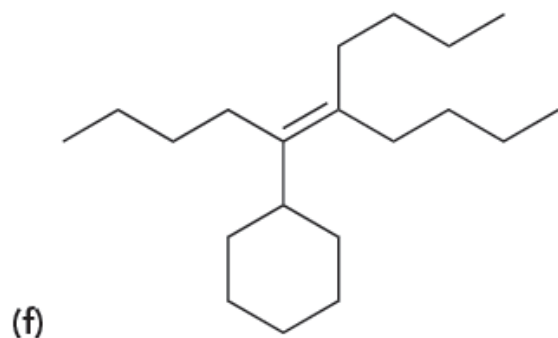
trans (E)



Tamoxifen

Used in treatment of breast cancer

trans (Z)



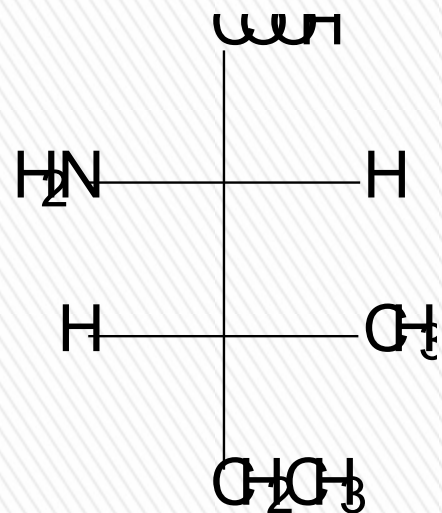
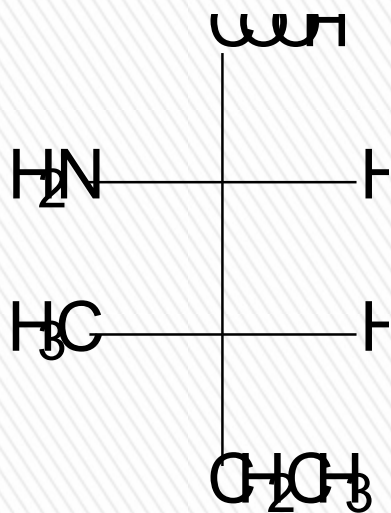
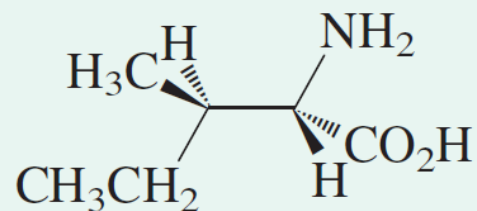
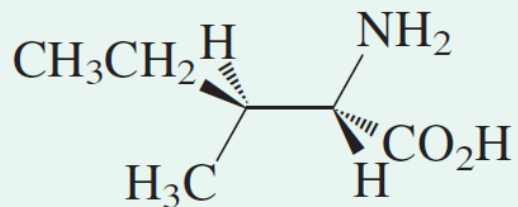
Aconitic acid

Involved in metabolism

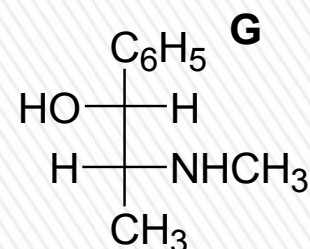
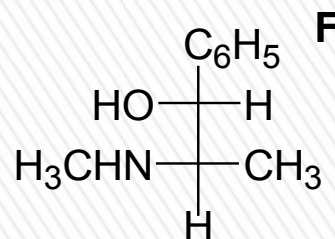
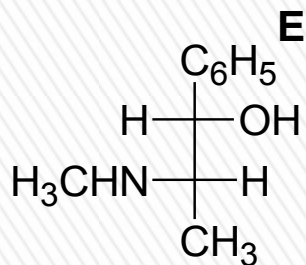
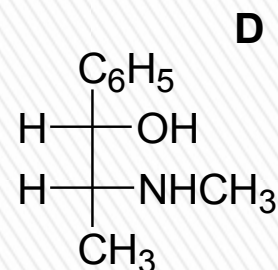
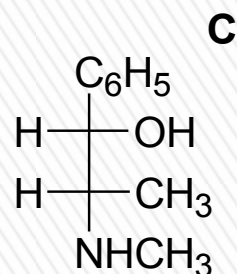
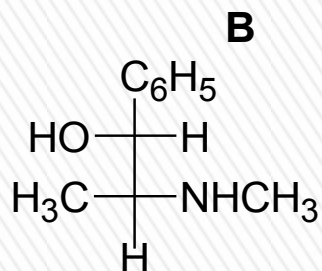
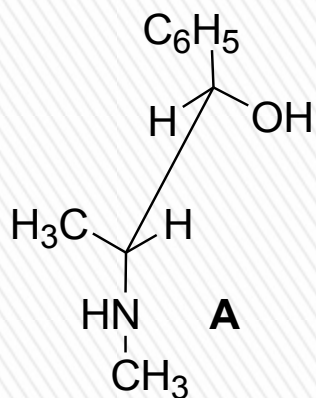
cis (Z)



Uvedené sloučeniny překreslete do Fischerovy projekce a pojmenujte



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.

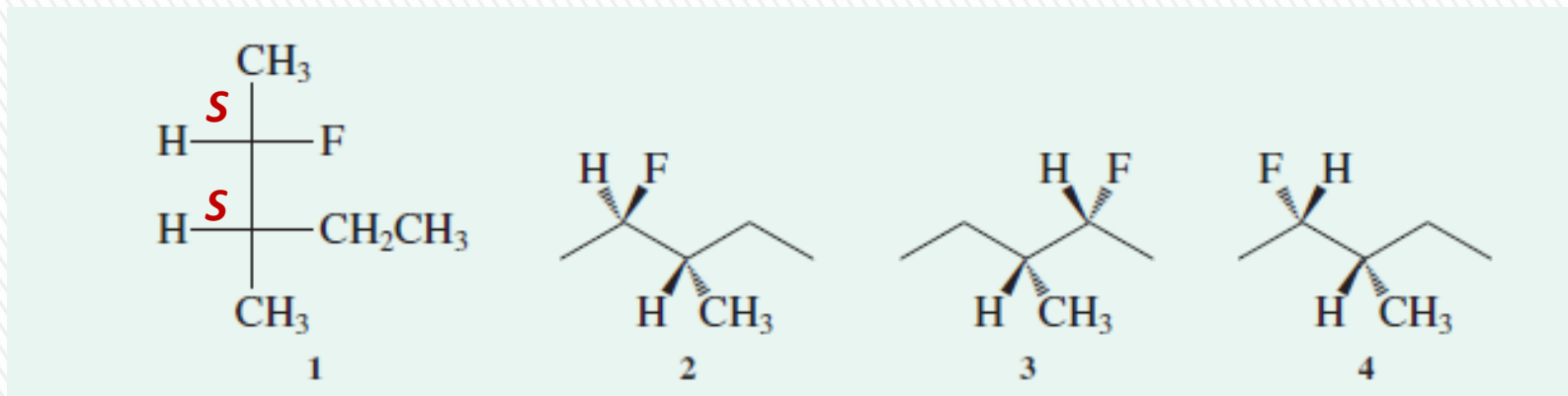


Vzorci **F** a **G**

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



Jaký je vzájemný stereochemický vztah mezi uvedenými sloučeninami



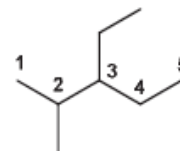
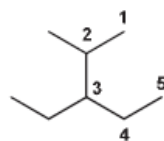
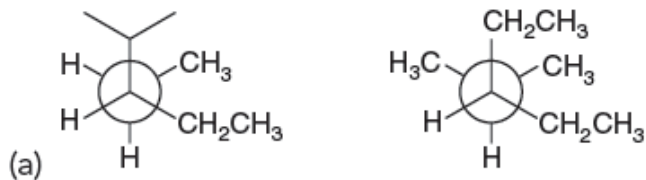
1 - 2 diastereomery

1 - 3 enantiomery

1 - 4 stejná sloučenina



Určete, jaký je mezi uvedenými sloučeninami vzájemný stereochemický vztah



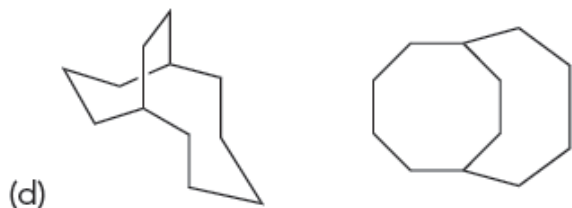
stejné



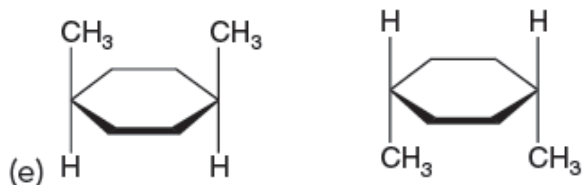
konstituční izomery



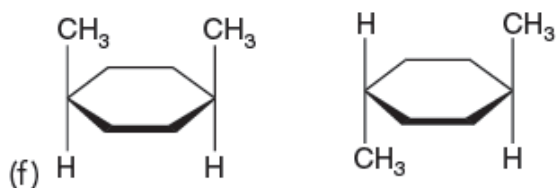
stejné



konstituční izomery

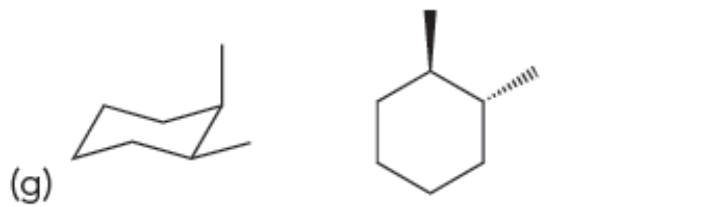


stejné

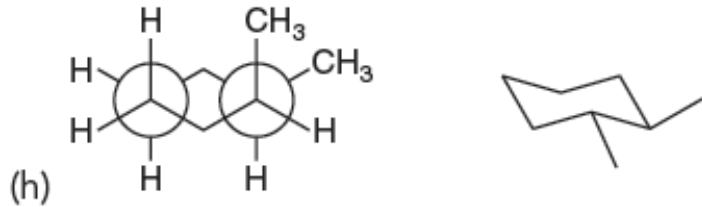


stereoizomery

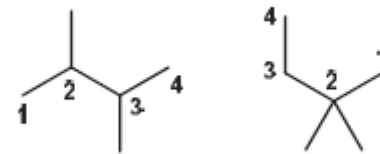
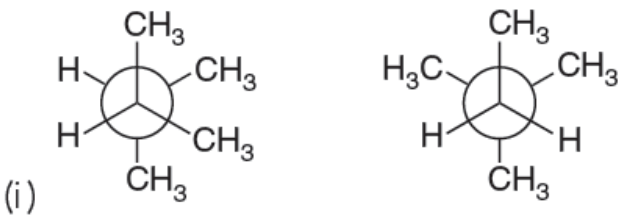




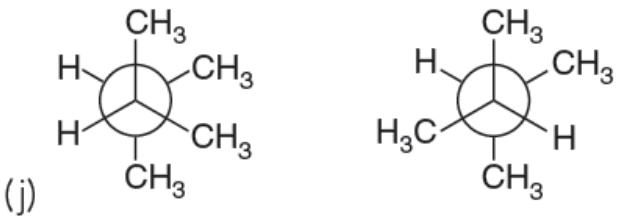
stereoizomery (*cis* – *trans*, diastereomery)



stereoizomery (*cis* – *trans*, diastereomery)



konstituční izomery



konformace téže sloučeniny



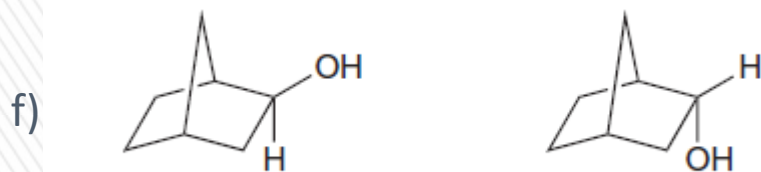
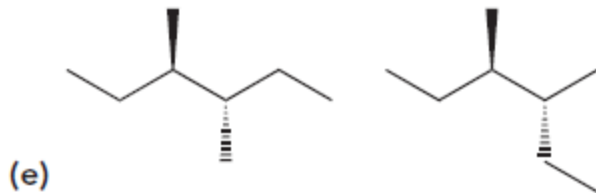
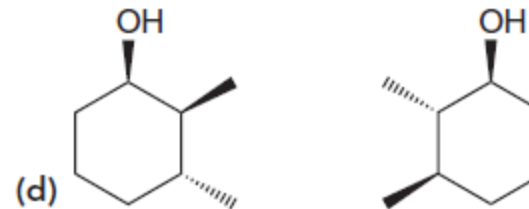
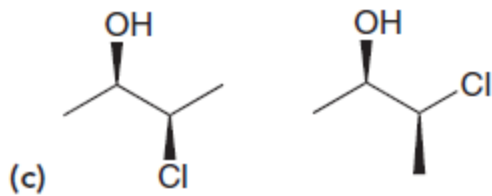
stereoizomery (*cis* – *trans*, diastereomery)



konstituční izomery



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



a) enantiomery

b) diastereomery

c) diastereomery

d) diastereomery

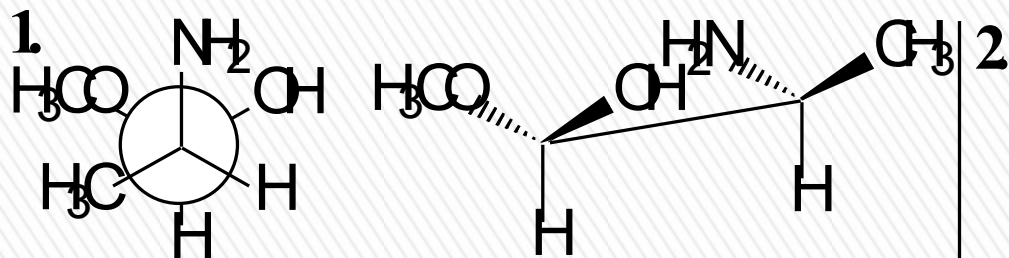
e) diastereomery

f) diastereomery

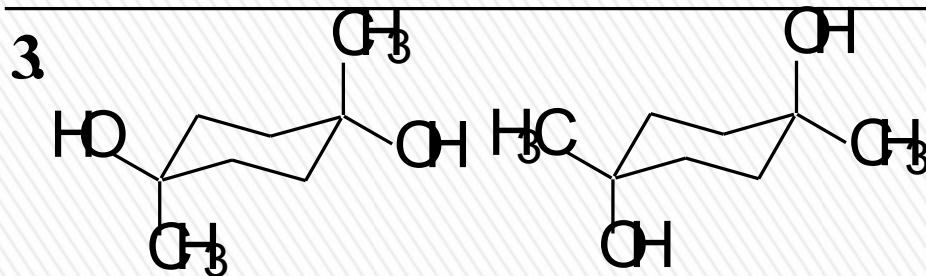
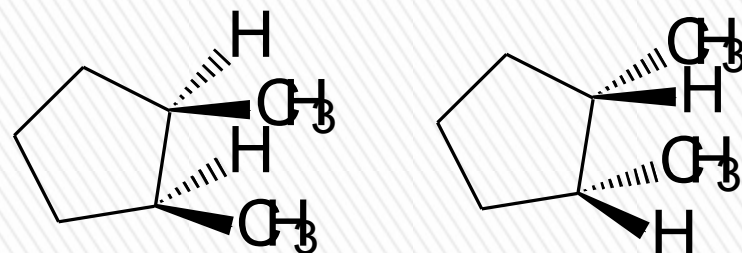


Určete, jaký je mezi uvedenými sloučeninami vzájemný stereochemický vztah

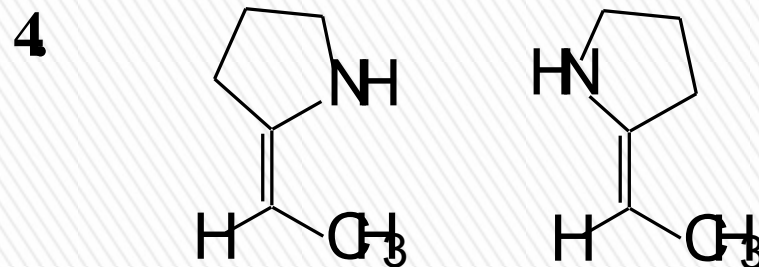
1. diastereomery



2. stejné (*meso*-)



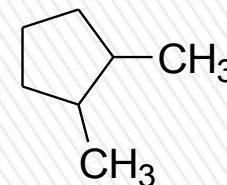
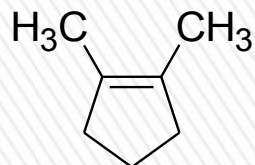
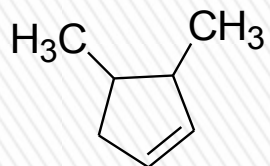
3. konformery



4. geometrické izomery



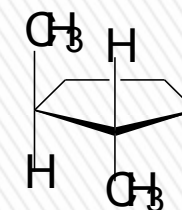
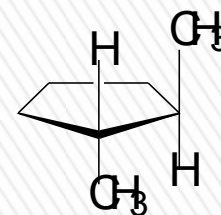
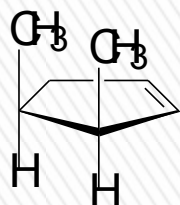
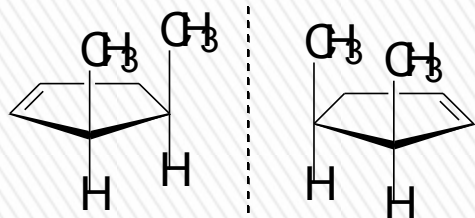
Nakreslete možné stereoizomery uvedených sloučenin. U každé z nich označte, zda otáčí rovinu polarizovaného světla či nikoli.



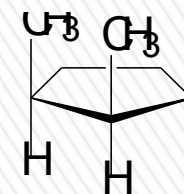
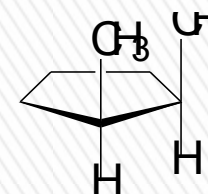
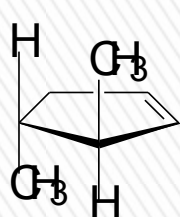
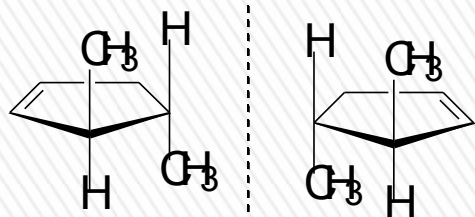
otáčí všechny

neotáčí

otáčí



diastereomery



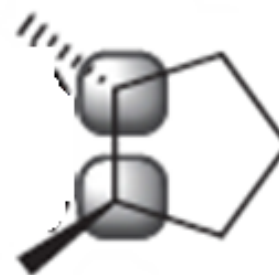
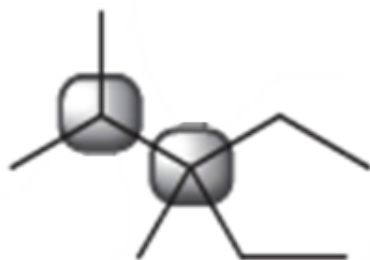
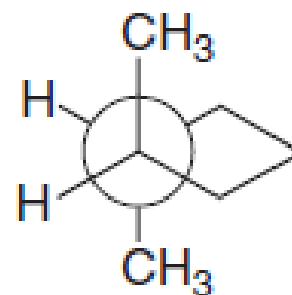
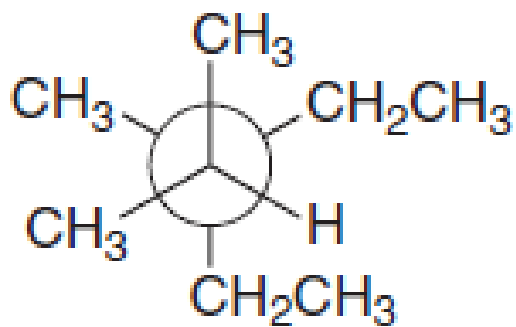
enantiomery

tatáž látka
meso-sloučenina

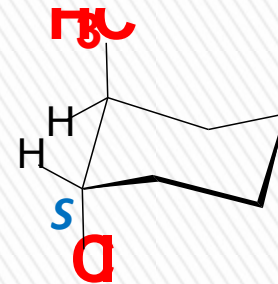
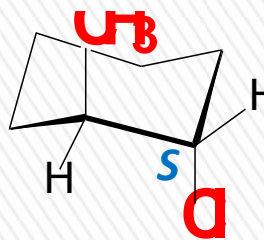
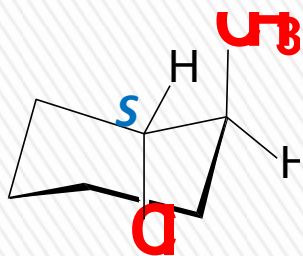
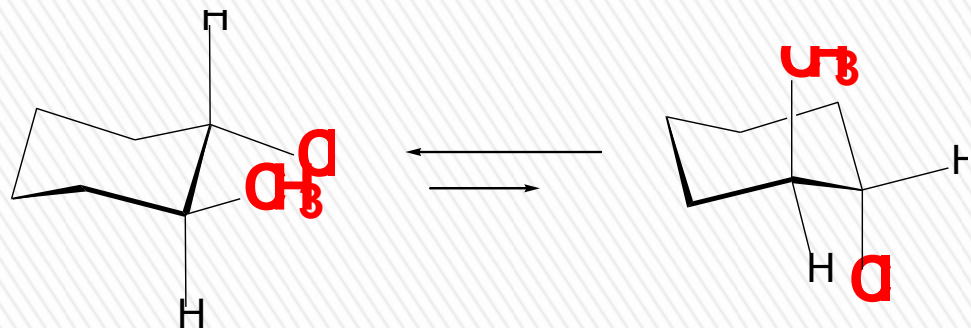
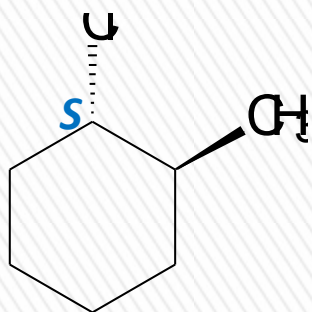
neotáčí



Nakreslete strukturní vzorec této sloučeniny

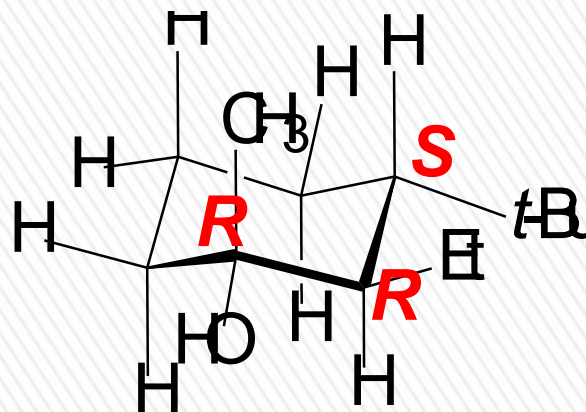
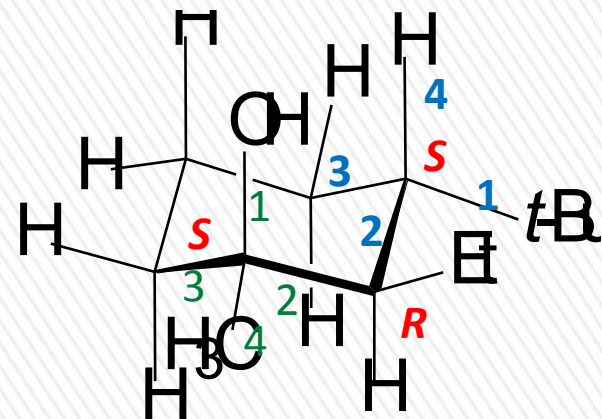
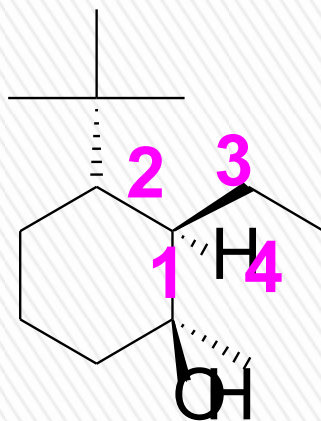
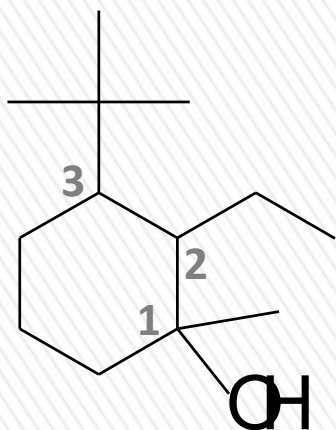


Uvedenou sloučeninu nakreslete v její nejstabilnější konformaci

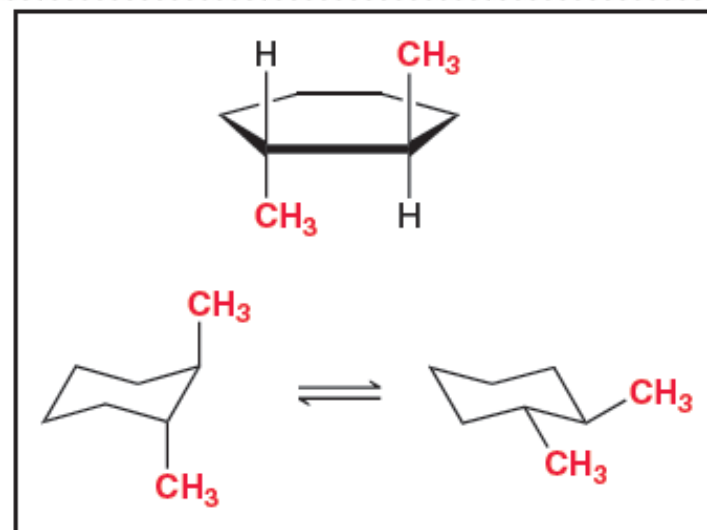
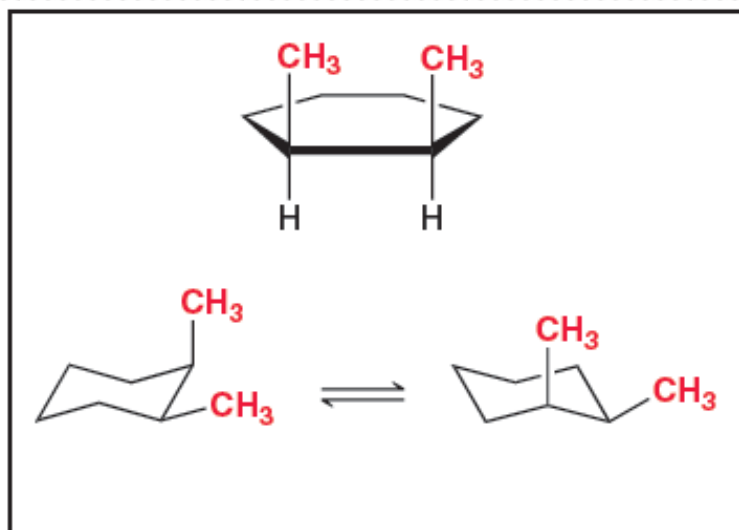


Níže uvedenou sloučeninu nakreslete v její nejstabilnější konformaci

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



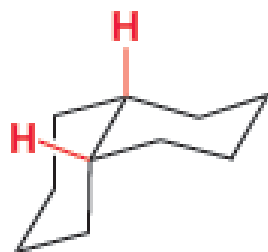
Určete, který ze dvou možných geometrických izomerů 1,2-dimethylcyklohexanu je termodynamicky stabilnější?



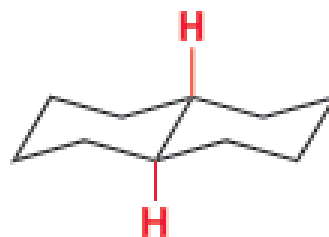
Může zaujmout konformaci, v níž je diekvatoriální pozice obou objemných substituentů



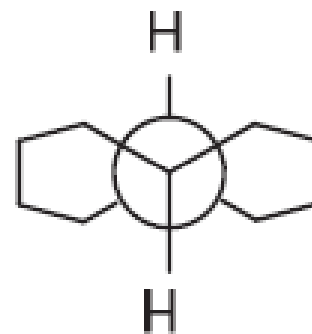
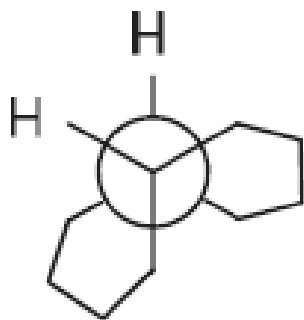
Určete, který ze dvou možných geometrických izomerů dekalinu je termodynamicky stabilnější?



cis-Decalin



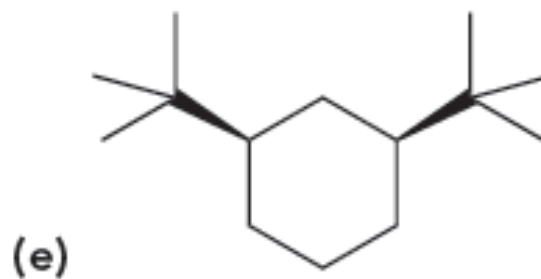
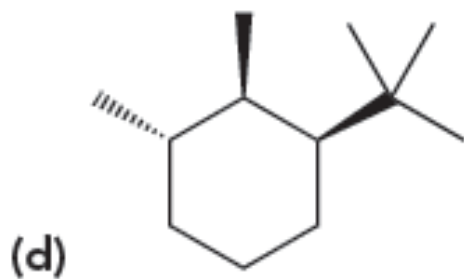
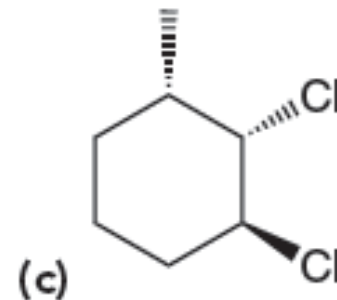
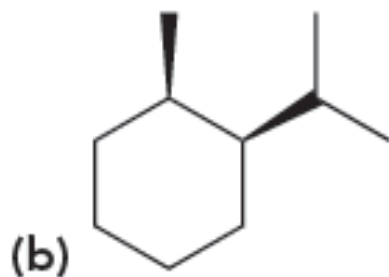
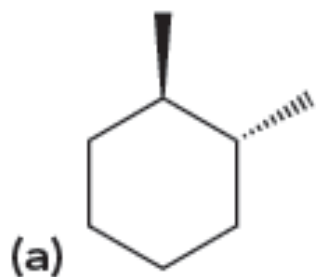
trans-Decalin



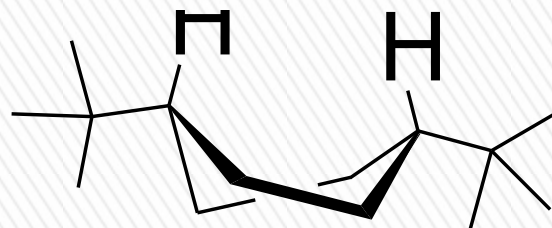
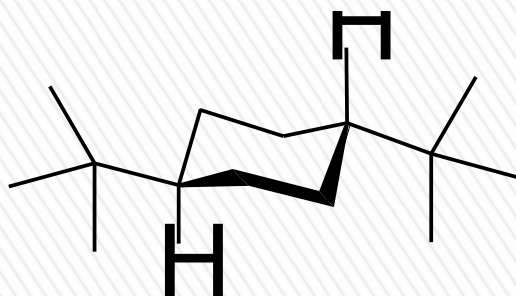
cis- dekalin je stabilnější – pouze 2 gauche interakce (*trans* má 3)



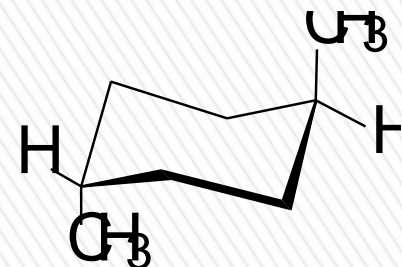
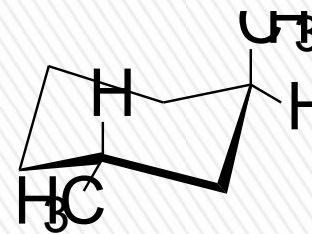
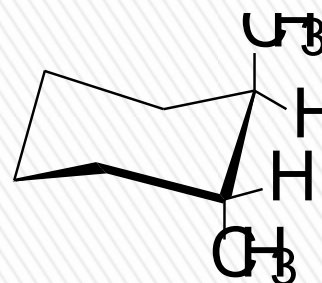
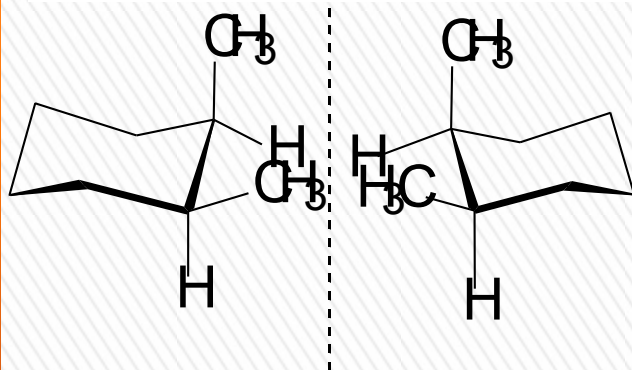
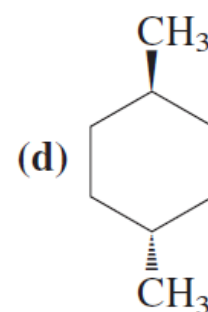
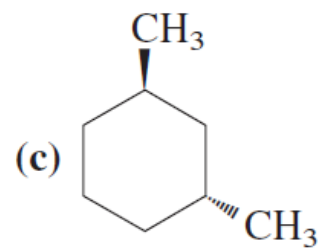
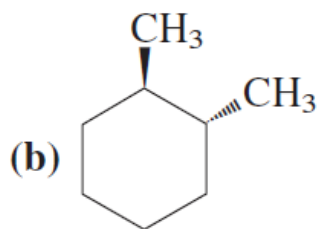
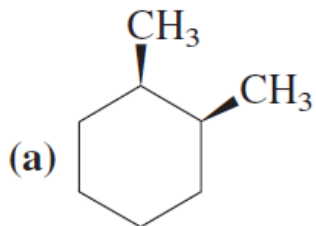
Nakreslete nejstabilnější konformaci uvedených sloučenin



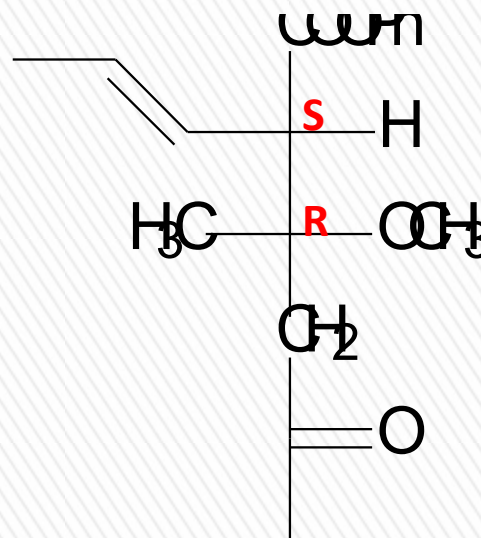
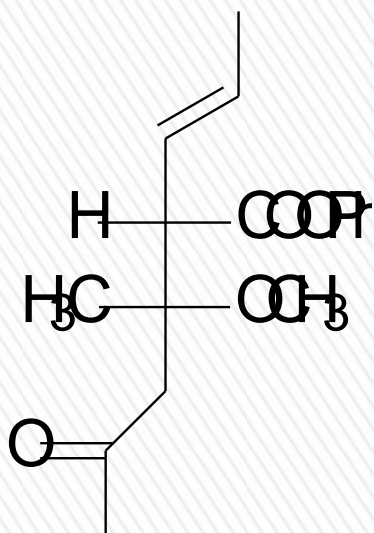
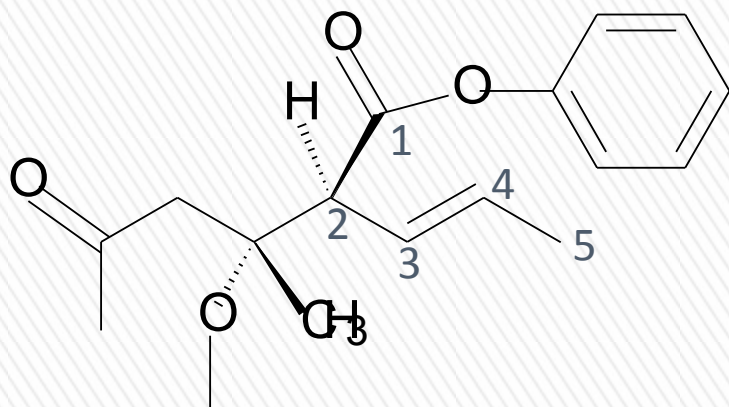
Která ze sloučenin se nachází přednostně v židličkové konformaci a která v twist formě?



Který z uvedených derivátů cyklohexanu je chirální?



Molekulu překreslete do Fischerovy projekce a pojmenujte včetně deskriptorů stereochemie



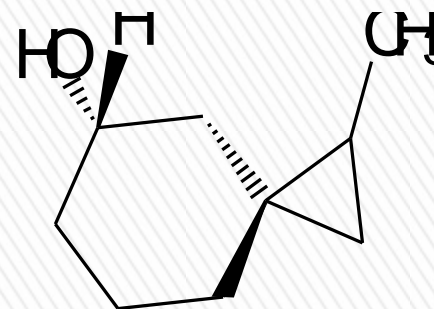
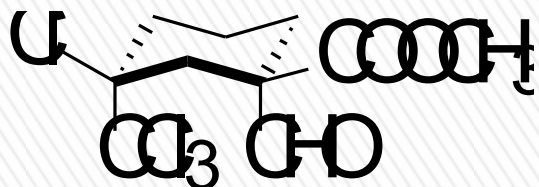
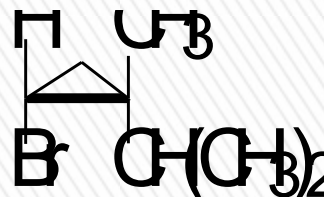
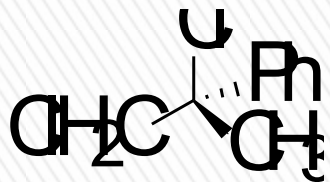
Nakreslete strukturní a Fischerův vzorec pro:

(2*R*,3*S*,4*R*)-natrium-2-amino-3-fenyloxy-4-methylhex-5-enoát

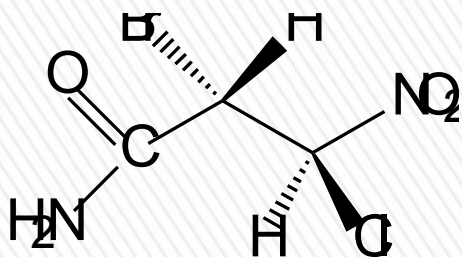
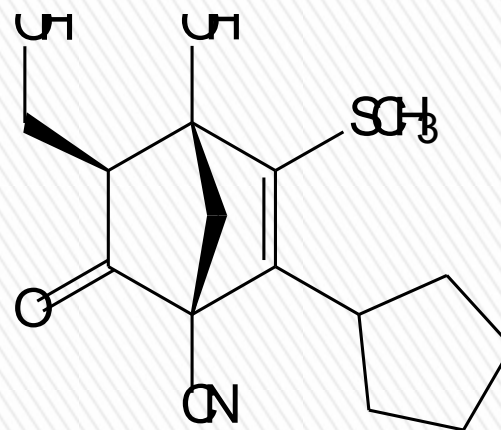
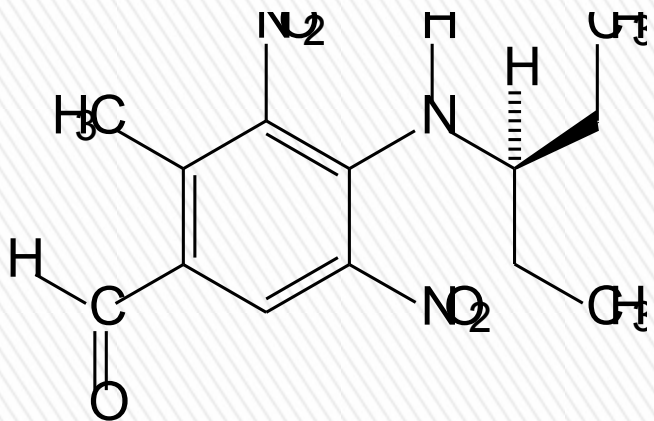
a uveďte celkový počet možných stereoizomerů této látky



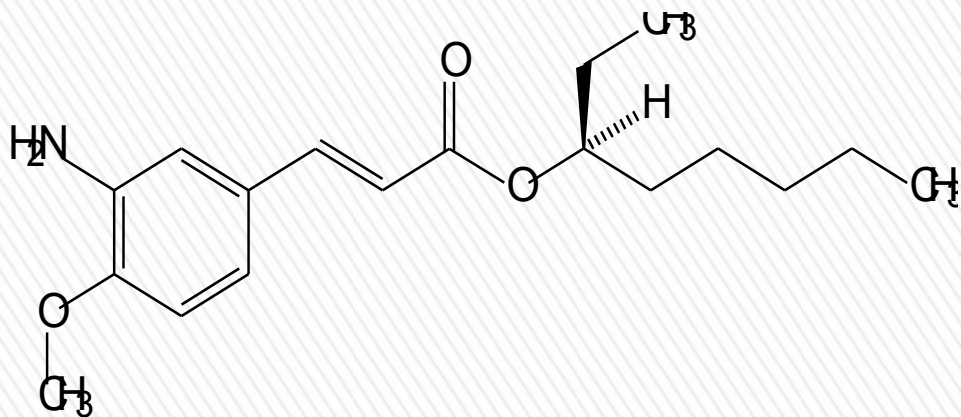
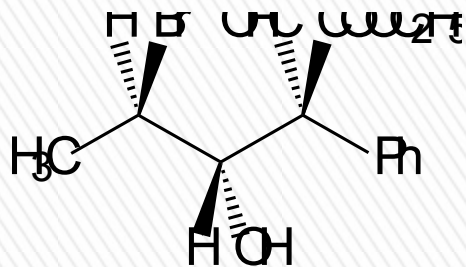
Označte * centra chiralit y a určete na nich absolutní konfiguraci



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)



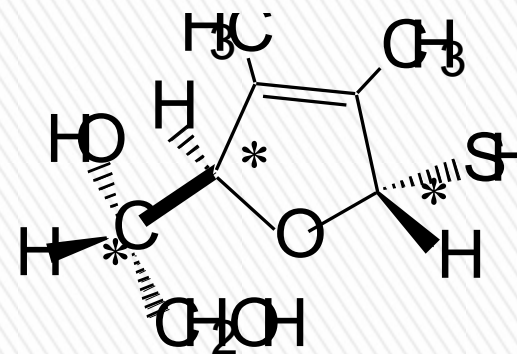
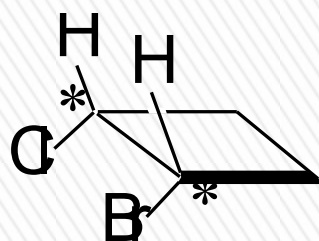
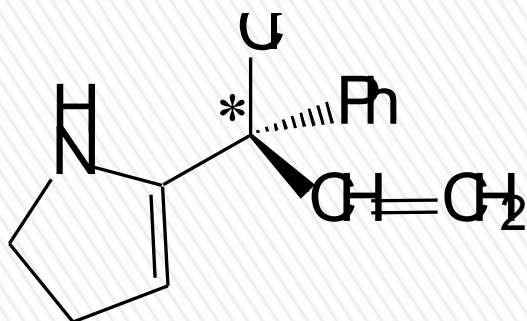
Nakreslete vzorce následujících sloučenin včetně znázornění prostorového uspořádání

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

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



Na vyznačených centrech chirality určete absolutní konfiguraci



Uvedenou sloučeninu nakreslete v její nejstabilnější konformaci

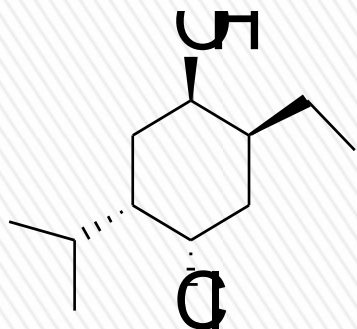
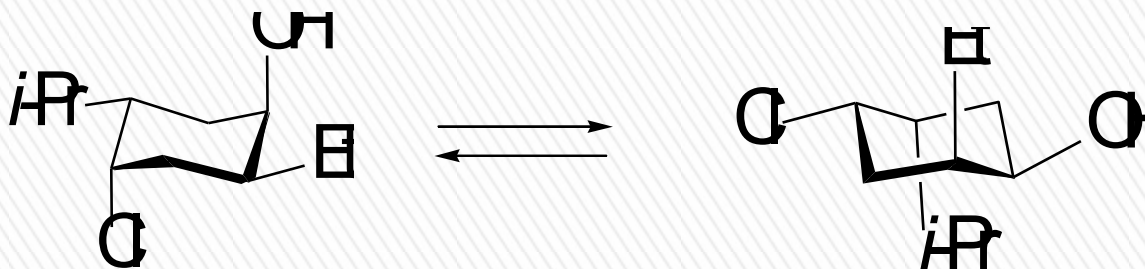


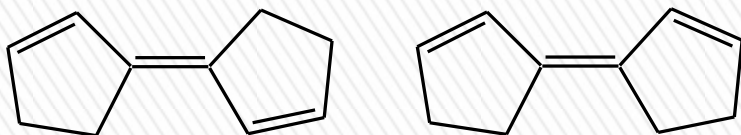
TABLE 4.8 1,3-DIAXIAL INTERACTIONS FOR SEVERAL COMMON SUBSTITUENTS

SUBSTITUENT	1,3-DIAXIAL INTERACTIONS (KJ/MOL)	EQUATORIAL-AXIAL RATIO (AT EQUILIBRIUM)
—Cl	2.0	70 : 30
—OH	4.2	83 : 17
—CH ₃	7.6	95 : 5
—CH ₂ CH ₃	8.0	96 : 4
—CH(CH ₃) ₂	9.2	97 : 3
—C(CH ₃) ₃	22.8	9999 : 1

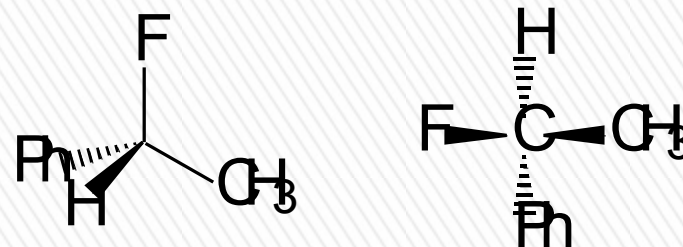


Určete, jaký je mezi uvedenými sloučeninami vzájemný stereochemický vztah

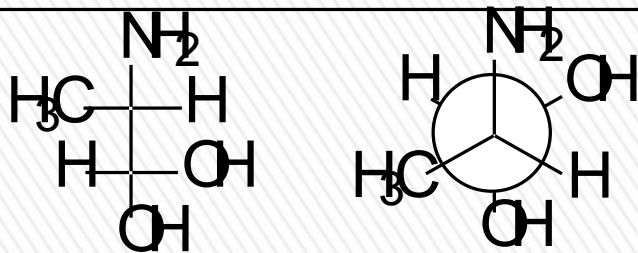
1



2



3



4

