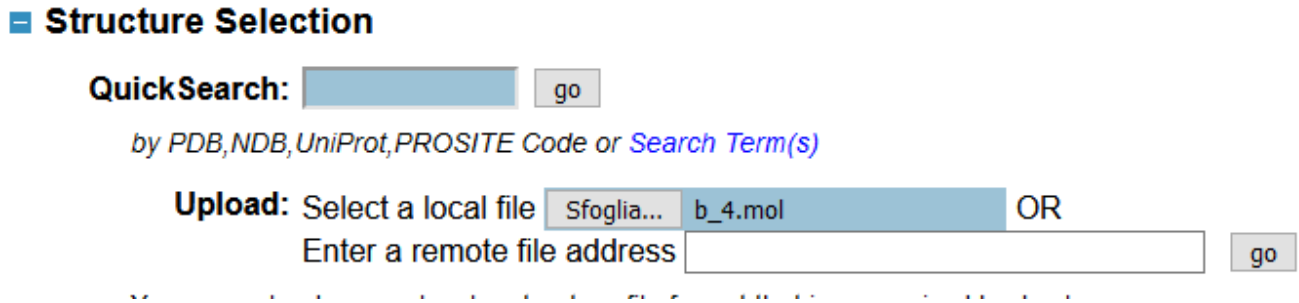
Esercitazione 9 - Squadra 1 (Chimica e Materiali) 13/11/2020

Visualizzare strutture molecolari:

http://jena3d.leibniz-fli.de/

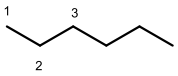
poi caricate i file che ho messo su Beep e cliccate “go”.

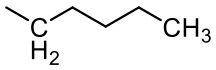


9.1 Scrivere la struttura lineare delle seguenti molecole organiche: 2,3-dimetilesano, etanale, 3-pentanone, 3-buten-2-olo, metantiolo, 2-metil-propanammina, acido benzoico, 2,2,2-trimetilbutano.

2,3-dimetilesano

n-esano:

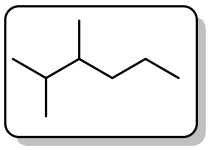


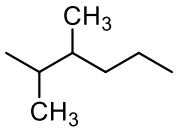


gruppo metil:

$-CH_3$

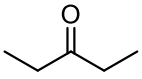
2,3-dimetilesano



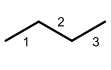


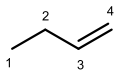
etanale

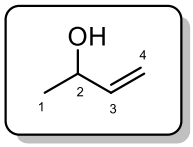
3-pentanone



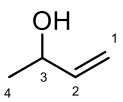
3-buten-2-olo

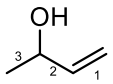






anche il nome 1-buten-3-olo andrebbe bene:

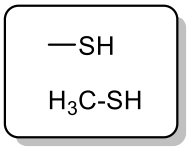




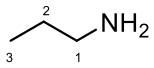
ma la "priorità" del gruppo OH è più alta non si usa questo nome

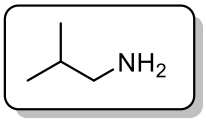
metantiolo

Metano CH_4



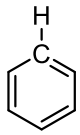
2-metil-propanammina

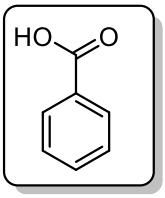




acido benzoico

Benzene:



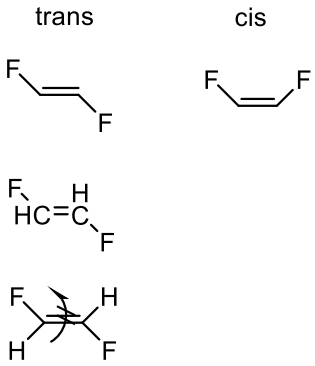


~~**2,2,2-trimetilbutano**~~

~~non esiste, perché C2 ha 5 legami covalenti~~

9.2 Quale tipo d'isomeria consiste tra le seguenti copie?

(a)

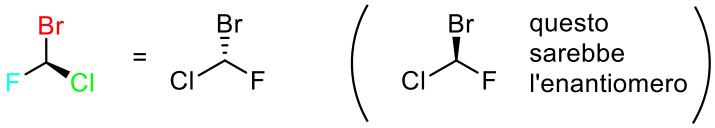


cis-trans
oppure
E-Z-isomeri

https://molview.org/?cid=5462921

https://molview.org/?cid=5365501

(b)



questo sarebbe l'enantiomero

sono le stesse molecole ("omomeri")

https://molview.org/?cid=79058

(c)

isomeri costituzionali

https://molview.org/?cid=5365501

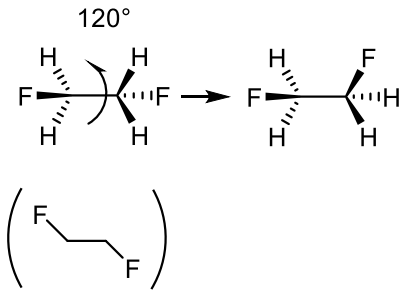
https://molview.org/?cid=6369

(e)

sono le stesse molecole "omomeri"

https://molview.org/?cid=6369

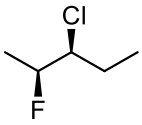
(d)

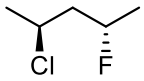


rotameri
oppure conformeri

https://molview.org/?cid=12223 per la molecola a destra

la molecola a sinistra vi trovate giù

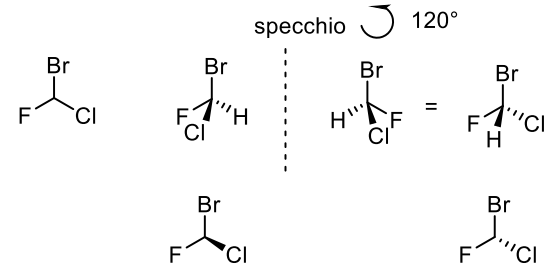
(f) 



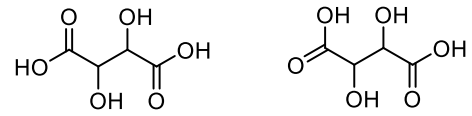
isomeri costituzionali

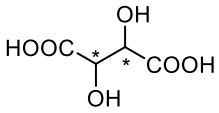
9.3 Quanti stereoisomeri ha l'acido tartarico (COOH-CHOH-CHOH-COOH)?

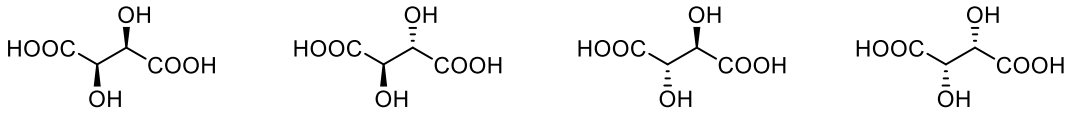
CHBrFCl



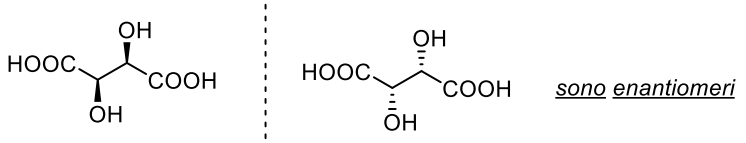
HOOC-CHOH-CHOH-COOH





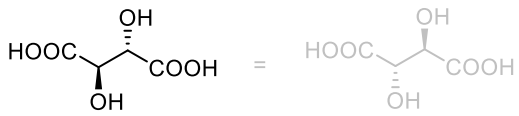


1 2 3 4



1 4

sono enantiomeri



2 3

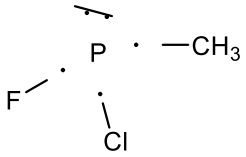
sono identiche, gli stessi!

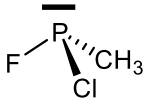
Ci sono 3 isomeri! Molecola 1, 4 e 2(=3)
1 e 4 sono enantiomeri
mentre 1 e 2 oppure 4 e 2 sono diastereomeri

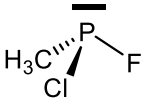
9.4 Quale delle seguenti molecole è chirale?

(a) $PFCl(CH_3)$ **sì perché molecola e la sua proiezione non sono identiche**

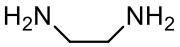
Lewis: quindi seguente VSEPR: la proiezione:

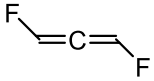


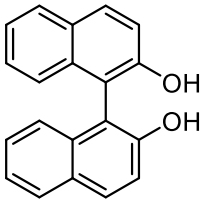




forse la prossima volta

(b) $[Cr(en)3]^{3+}$ en = 

(c) 

(d) 

(e) $NFCl(CH_3)$