

TD 03**Exercice 1 :**

- 1- Donner 5 isomères de fonction ayant pour formule brute $C_6H_{12}O_2$.
- 2- Donner tout les isomères de position et de squelette des acides correspondant à cette formule.

Exercice 2 :

Combien d'isomères de position et de squelette peut-on décrire à l'hydrocarbure cyclique de formule brute C_6H_{12} .

Exercice 3 :

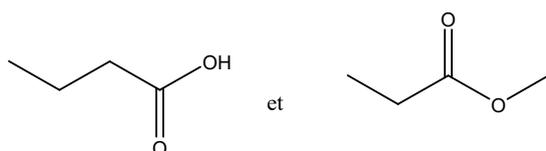
Soit un acide A de formule brute $C_4H_8O_2$:

- Donner 5 isomères de fonction de cet acide.
- La molécule A possède deux fonctions alcools, donne tout les isomères de position et de squelette.
- Indiquer par le symbole (*) chaque carbone asymétrique.
- Peut-on définir la molécule A sachant qu'elle possède deux carbones asymétriques.

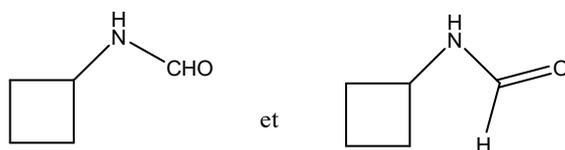
Exercice 4 :

Indiquer si les couples de molécules suivants sont : isomères de fonction, isomères de position, isomères de squelette, des tautomères, des molécules identiques ou sans relation.

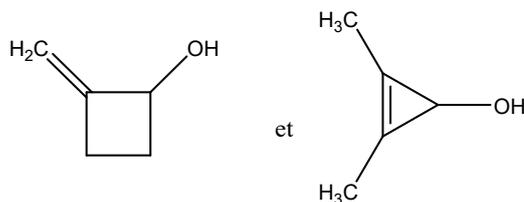
a-



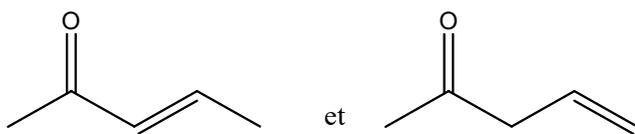
b-



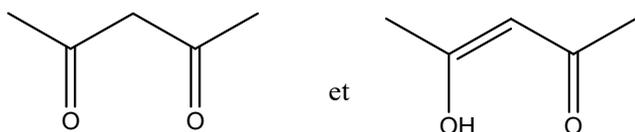
c-



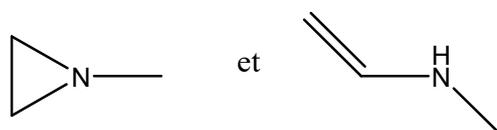
d-



e-

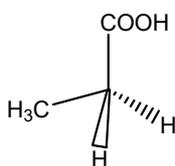


f-

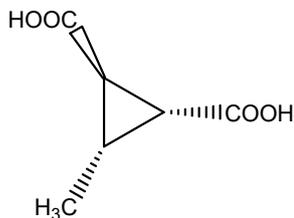
**Exercice 5 :**

Parmi les molécules suivantes indiquer celles qui sont chirales (dans le cas des molécules chirales, indiquez le carbone asymétrique). Justifier votre réponse.

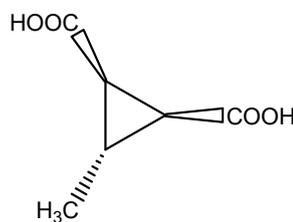
a-



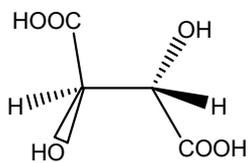
b-



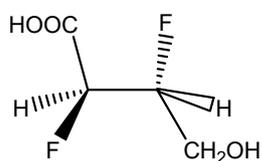
c-



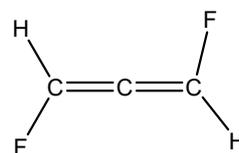
d-



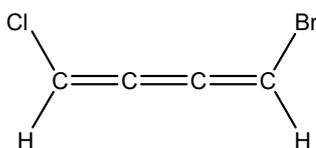
e-



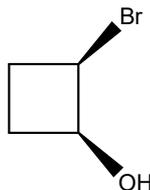
h-



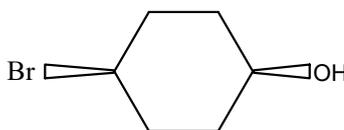
f-



g-



i-



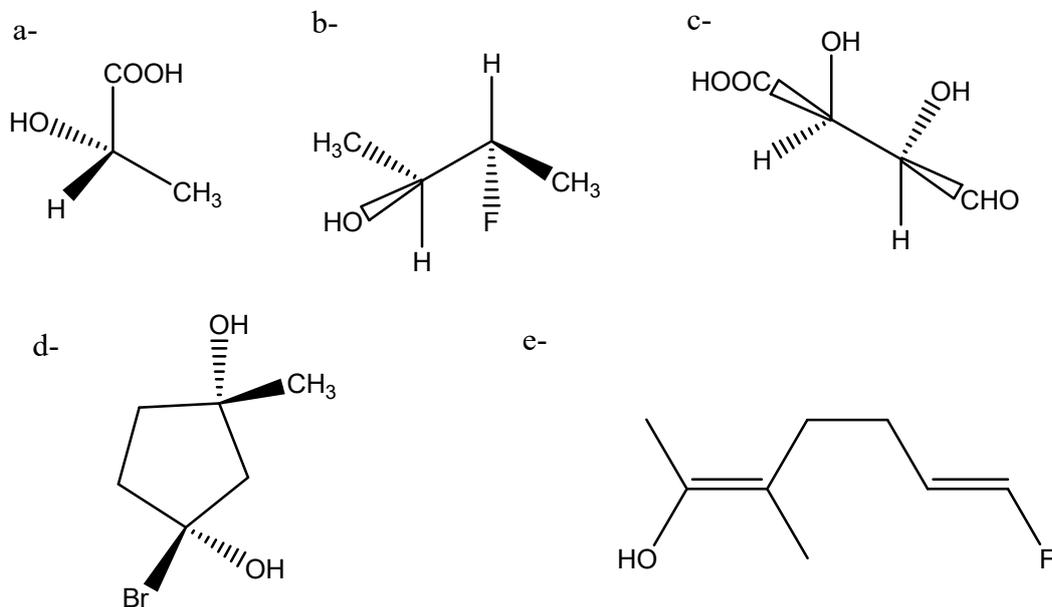
Exercice 6 :

Parmi les atomes et les groupes fonctionnels suivants, établir l'ordre de propriété (règle de Can-Inglood-Prelog) :

- a- H, F, S, Cl, N, Br
- b- -CH₃, OH, SH -C₂H₅, -C(CH₃)₃,
- c- -C₆H₆, Br, -CH₂OH, -CHO, -COOH, -CH₃
- d- -C₆H₆, -CH₂I, -C=CH₂, CHBr₂

Exercice 7 :

Donner la configuration absolue (R et S) du ou des carbone asymétrique existants dans les molécules suivants :



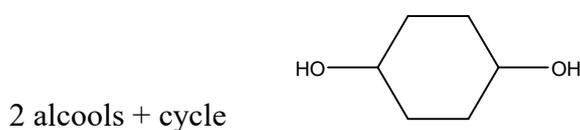
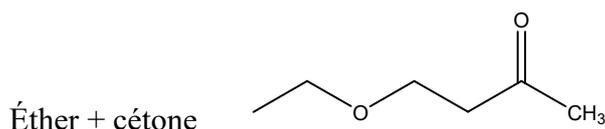
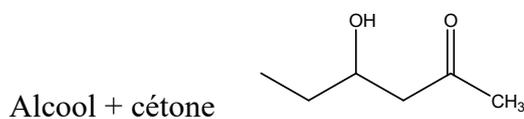
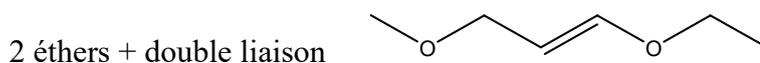
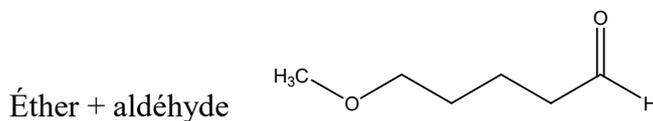
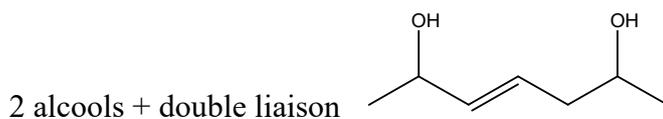
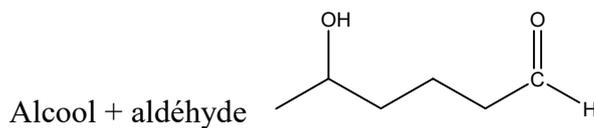
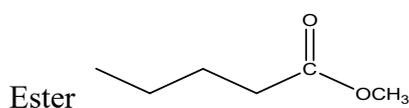
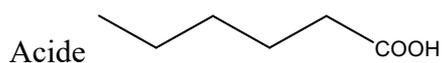
Donner la nomenclature des composés.

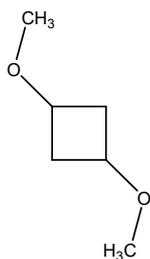
Correction TD 3

Exercice 1 :

1- Isomères de fonction de C₆H₁₂O₂ :(choisir 5 composés)

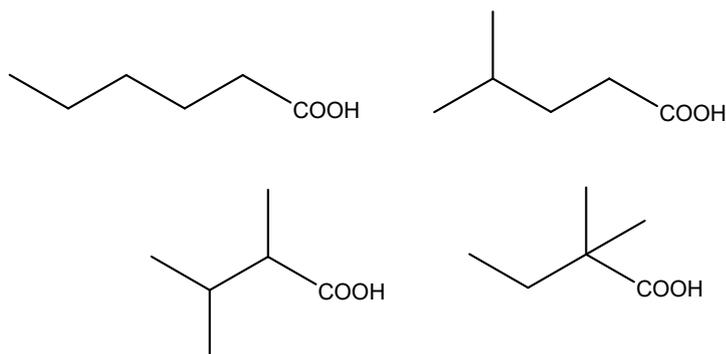
$$W = 6 - 12/2 + 1 = 1$$



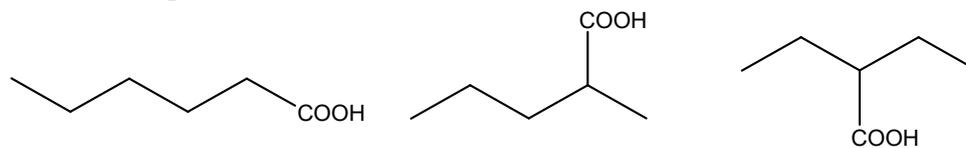


2 éthers + cycle

2- Isomères de squelette :

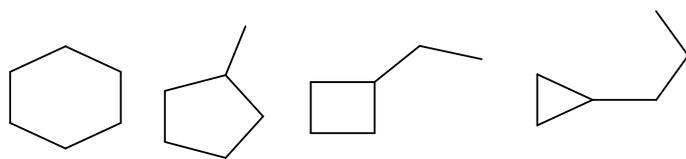


3- Isomères de position :

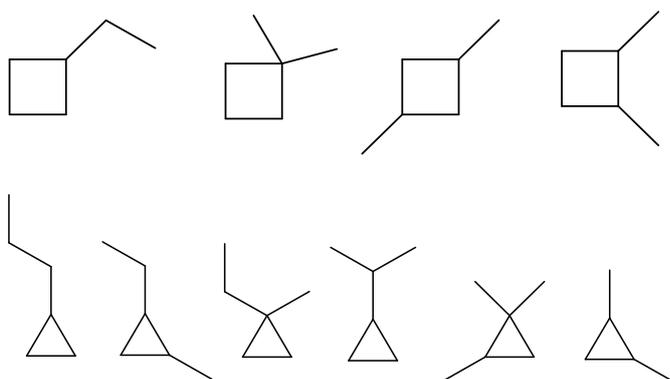


Exercice 2 :

Isomères de squelette :



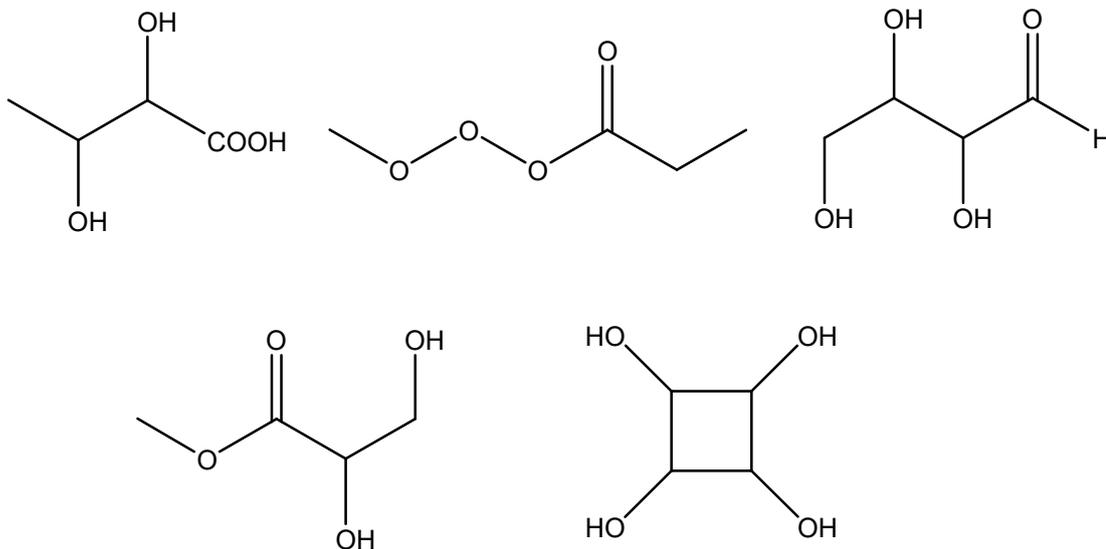
Isomères de position :



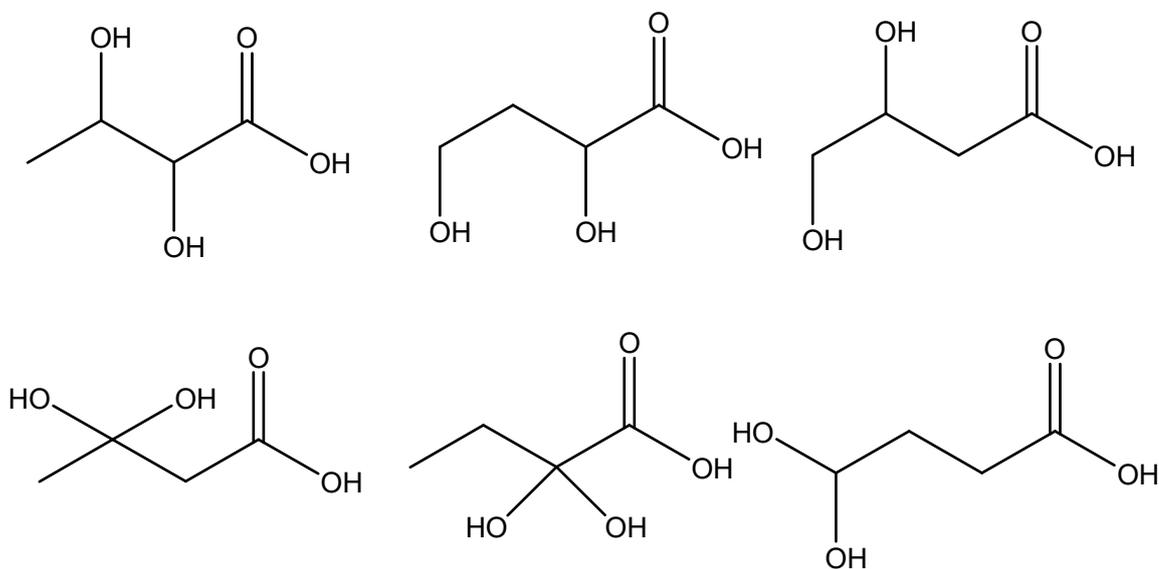
Exercice3 :

$$W = 4 - 8/2 + 1 = 1$$

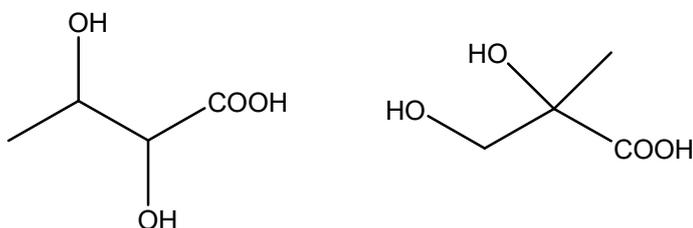
Isomères de fonction :



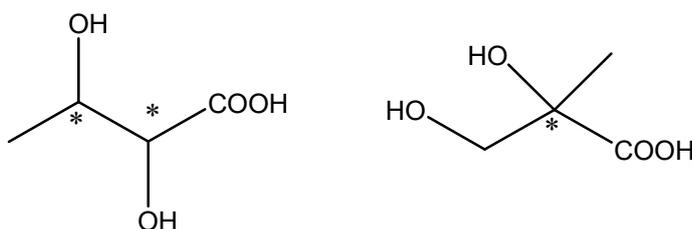
Isomères de position :



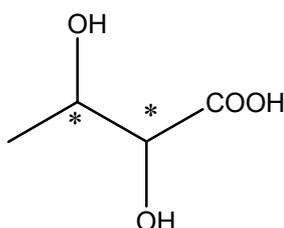
Isomères de squelette :



Carbone asymétrique :



La molécule A est :



Exercice 4 :

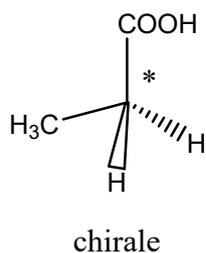
- a- Isomères de fonction
- b- Molécules identiques
- c- Isomères de squelette
- d- Isomères de position
- e- Molécules tautomère
- f- Isomères de fonction

Exercice 5 :

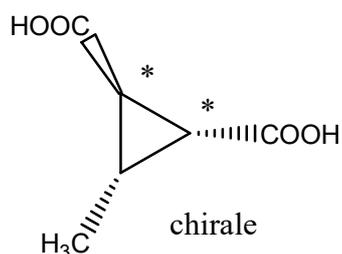
Chirale : molécule qui ne possède aucun élément de symétrie.

Achirale : molécule qui a au moins un élément de symétrie.

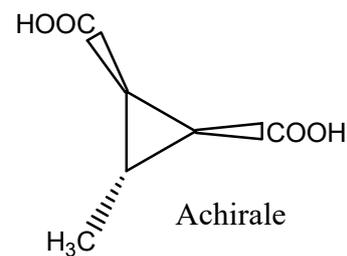
a-



b-

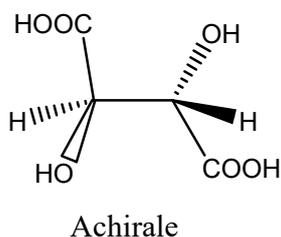


c-



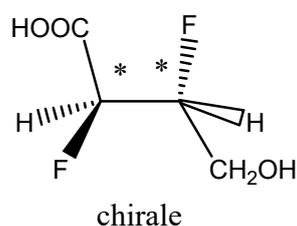
présence d'un plan de symétrie

d-

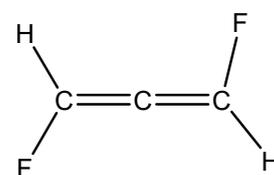


présence d'un point de symétrie

e-

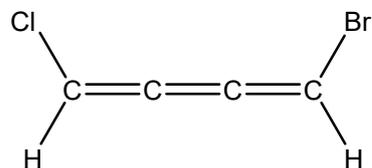


h-



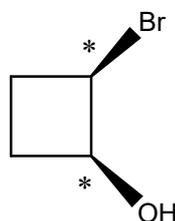
molécule plane (présence de doubles liaisons) donc pas de chiralité

f-



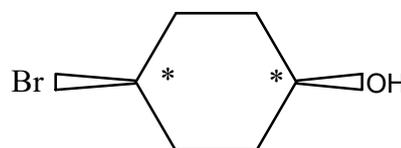
molécule plane (présence de doubles liaisons) donc pas de chiralité

g-



chirale

i-



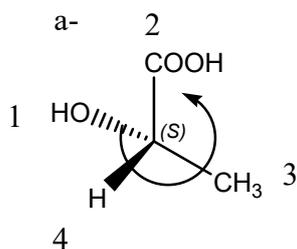
chirale

* : carbone asymétrique

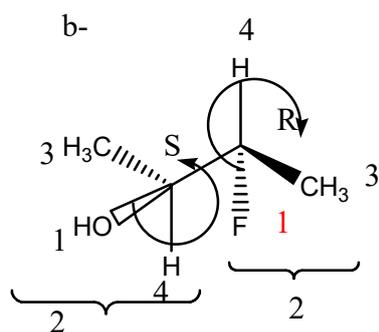
Exercice 6 :

- a- Br, Cl, S, F, N, H
- b- SH, OH, -C(CH₃)₃, -C₂H₅, -CH₃
- c- Br, -COOH, -CHO, -CH₂OH, -C₆H₆, -CH₃
- d- -CH₂I, CHBr₂, -C₆H₆, -C=CH₂

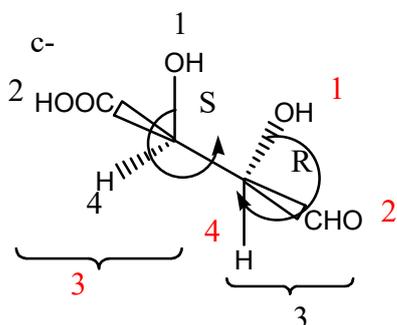
Exercice 7 :



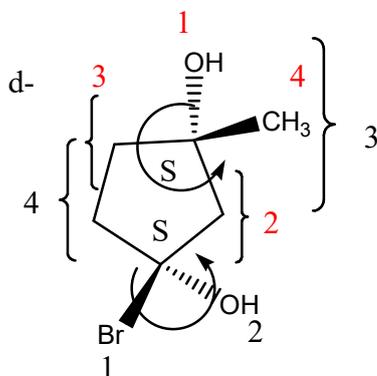
(S)acide-2-hydroxypropanoïque



(2*S*,3*R*)-3-fluorobutan-2-ol

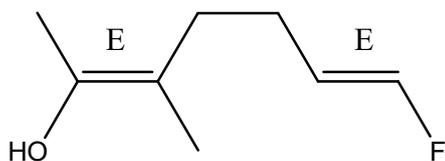


(2*S*,3*R*)acide-2,3-dihydroxy-4-oxobutanoïque



(1*S*,3*S*)-1-bromo-3-méthylcyclopentane-1,3-diol

e-



(2E,6E)-7-fluoro-3-methylhepta-2,6-dien-2-ol