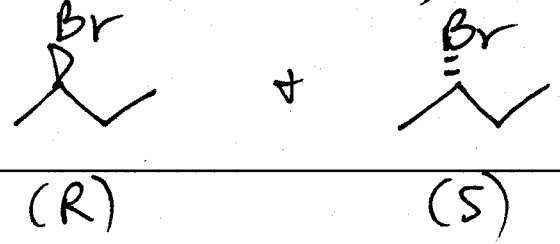
"Easy" ways to identify chiral molecules:

* presence of just one chirality center - if there is only one, then the molecule is definitely chiral.

* presence of an internal mirror plane (plane of symmetry) - even if chirality centers are present, if the molecule has an internal mirror plane, it will be superimposable on its mirror image + therefore achiral.

Nomenclature (IUPAC)

consider: 

(R) (S)

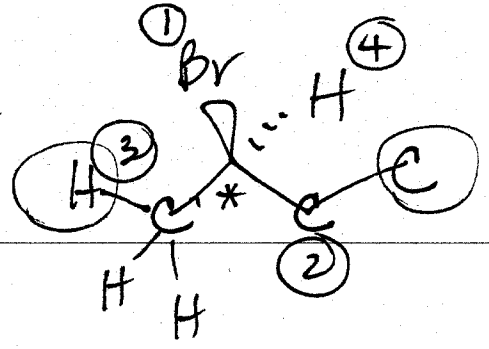
* 2-bromobutane
* ~~enantiomers~~
* how can we name them so as to tell them apart?

Use Cahn-Ingold-Prelog rules of prioritization.

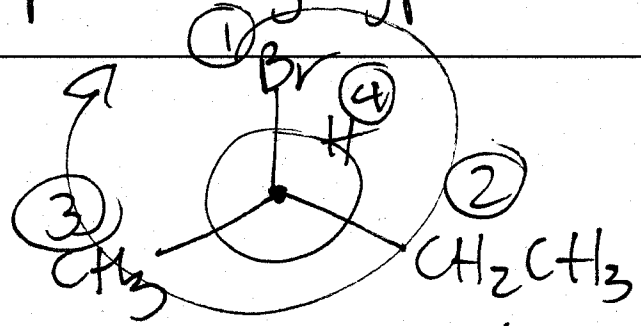
1. Each of the 4 gps. attached to the chirality center is assigned a priority. 1 → 4 (high → low)

   a. Go by atomic #. Higher atomic # = higher priority.

   b. If you can't choose based on those atoms, go one atom out.



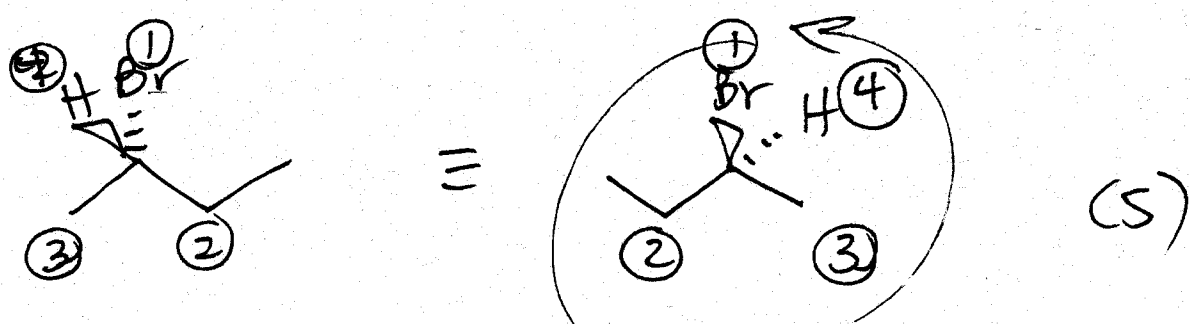
2. Align the molecule so that the lowest priority gp. is pointing away.



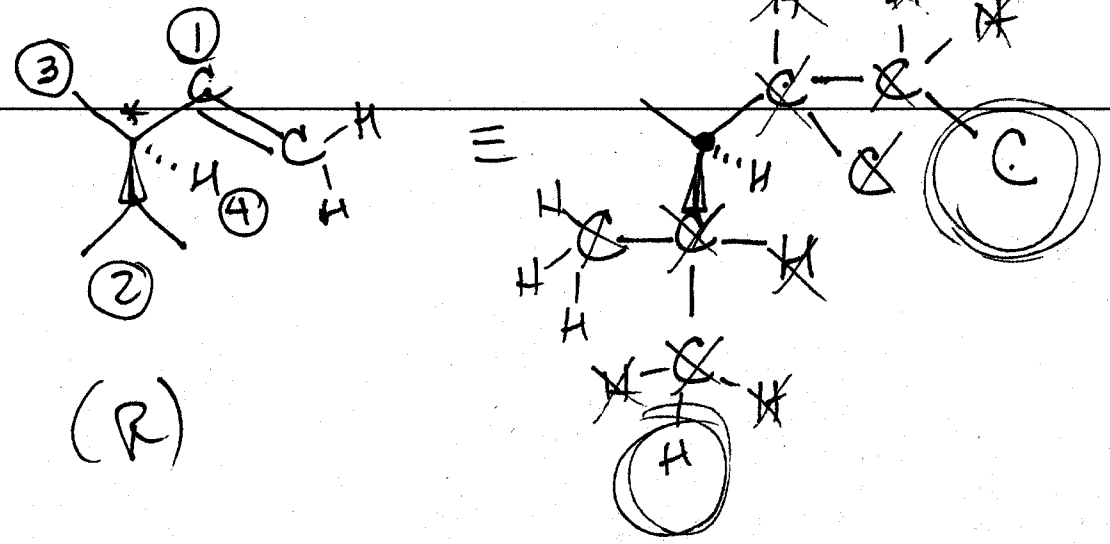
3. Draw a circle 1→2→3

a. Clockwise – (R) rectus (right)

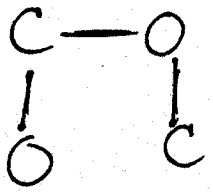
b. Counterclockwise – (S) sinister (left)

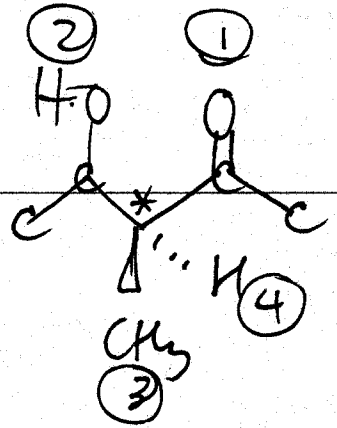


what if there are multiple bonds?

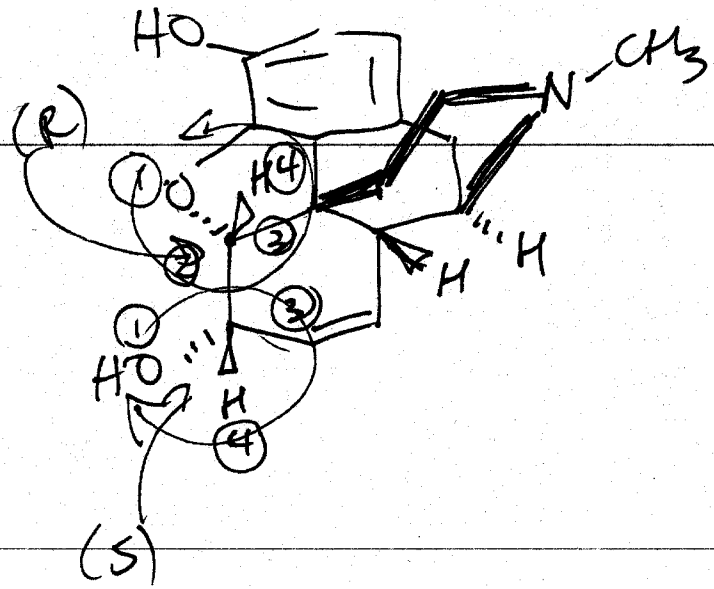


(R)





(S)



morphine