

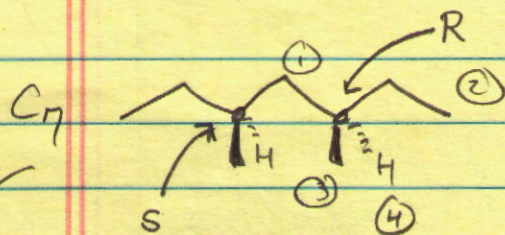
Ch 5-18

MESO compound

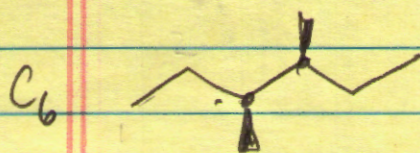
If a molecule has 2 or more chiral centers, but the molecule has a plane of symmetry, then **meso**.

Hint: if a molecule has an odd # of C, then draw out ^{perspective} zigzag chain and evaluate for plane of symmetry.

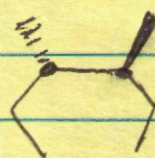
if there are an even # of C, then draw perspective chain in eclipsed form



can identify **symmetry**
 $\therefore$ molecule is meso and NOT chiral (achiral)



redraw



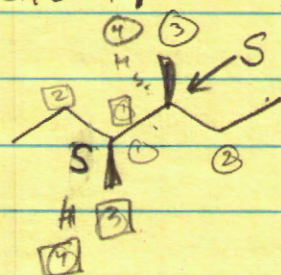
not symmetric $\therefore$ chiral

Name: could be $(3R, 5S)$ or $(3S, 5R)$
alphabetically R is before S

$(3R, 5S)$ -3,5-dimethylheptane

$\rightarrow$ stereochemistry descriptor $(\#R \text{ or } S)$ - or $(\#R \text{ or } S, \#R \text{ or } S)$ - (name)

Ch 5-19



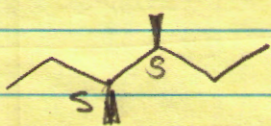
$(3S,4S)$ -3,4-dimethylhexane

see
convention

Diastereomers are stereoisomers that are not enantiomers

For example

(A)



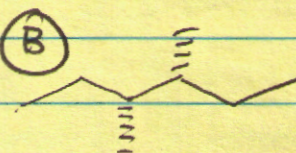
NOT meso

$\therefore$ chiral molecule
that is not identical
to its mirror image

I know enantiomer is (without thinking)

is

(B)



and that its name is

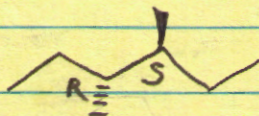
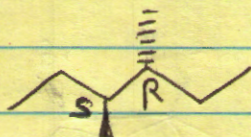
$(3R,4R)$ -3,4-dimethylhexane

LOOK $\Rightarrow$

stereoisomers have the
same name, but differ in
the R, S descriptors!

Name a meso compound and you will see that they
are identical

(C)



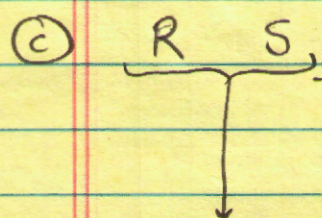
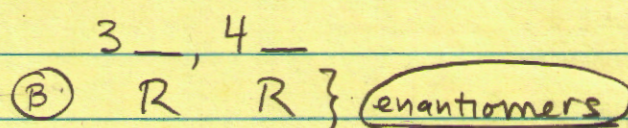
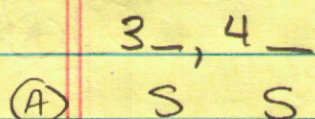
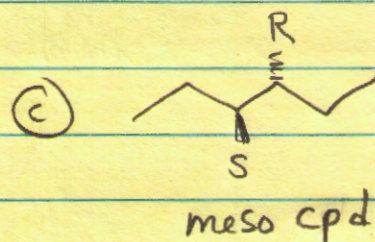
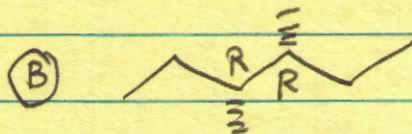
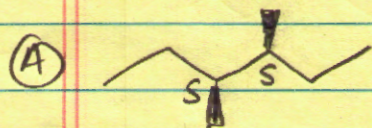
both are named

$(3R,4S)$ -3,4-dimethylhexane

this only tells the stereochemistry!

I need these #'s in
the name

Ch 5-19a



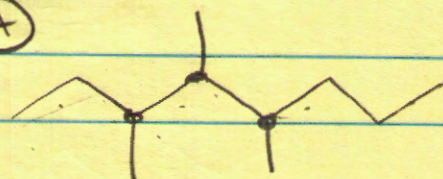
See how enantiomers
reciprocate S to R and
vice versa!

this is a stereoisomer of (A) & (B) that is not
an enantiomer. ∴ it is a Diastereoisomer of
(A) & (B).

Ch5-20

(A)

C_8
↓
even #

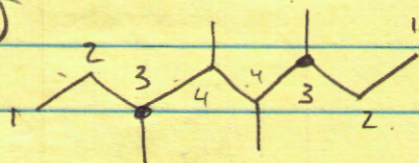


not symmetric $\therefore$ no stereoisomers
will be meso!

however

(B)

C_8



there is symmetry $\therefore$ some of the
16 possible stereoisomers will be
meso and thus identical to their
apparent mirror image.

Let's evaluate all of the possible stereoisomers of (A)
w/o drawing them

	3	4	5		3	4	5	
2 (3)	R	R	R	→	S	S	S	} Enantiomers
total	R	R	S	→	S	S	R	
isomers	R	S	R	→	S	R	S	
for (A)	S	R	R	→	R	S	S	
3 chiral centers								

See how R chiral centers changed to S and vice versa
when we evaluated the enantiomer

Example: this compound has 1 enantiomer and 6 diastereomers

Each of the above also has 1 enantiomer and 6 diastereomers