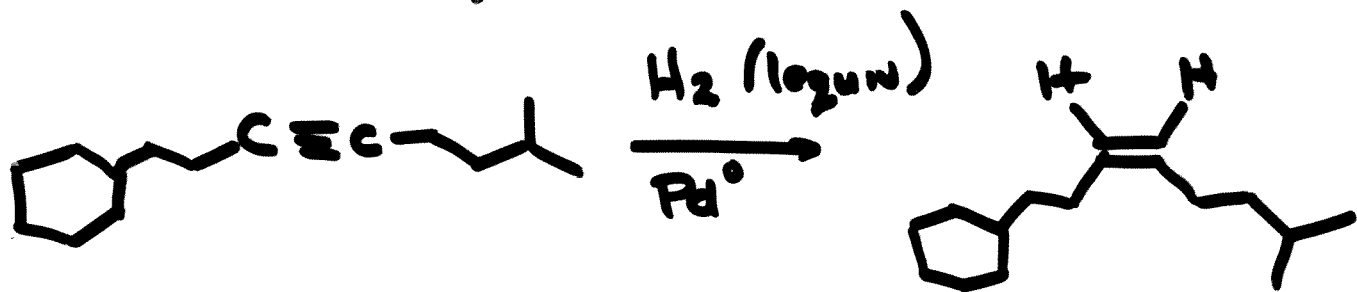


ALKYNES, AND ELECTROPHILIC ADDN RXNS.

- 1) YES, BUT SLOWER THAN ALKENES
- 2) MOST OF RULES STILL APPLY
 - a) MARKOVNIKOV RULE
 - b) STEREOCHEMISTRY
- 3) H^+ / H_2O NEEDED Hg^{2+} AND GIVES KETONE.

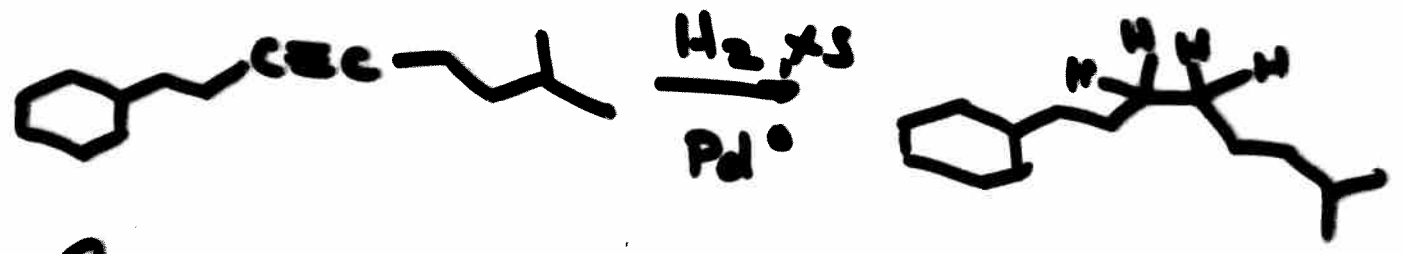
CATALYTIC HYDROGENATION.

- ALKYNES DO THIS REACTION
- REACTION IS A BIT FASTER THAN ALKENES.



- STILL GET "CIS" ADDN. OF H_2
- BEST WAY TO MAKE Z-ALKENE

- BUT - ALKENES AREN'T THAT MUCH SLOWER, SO IF ONE IS SLOPPY.



- COMMON TO USE A DEACTIVATED Pd⁰ CATALYST - LINDLAR CATALYST.

CHAPTER 6.

NUCLEOPHILIC SUBSTITUTIONS, CHIRALITY.

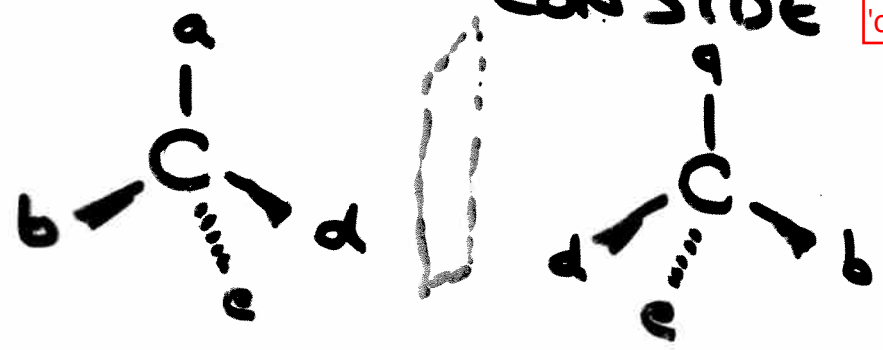
CHIRALITY + CHIRAL CENTRES,

- HANDS ARE MIRROR IMAGES, BUT ARE NOT SUPERIMPOSABLE

- NOT IDENTICAL.

CONSIDER

there's an 'R' in 'consider'



CARBON WITH 4 DIFF. GROUPS SUBSTITUTED

- MIRROR IMAGES BUT NOT SUPERIMPOSABLE

∴ ENANTIOMERS

definition

- A COMPOUND WHICH HAS THIS PROPERTY IS SAID TO BE CHIRAL

- THE CENTRE WITH 4 DIFFERENT GROUPS IS A CHIRAL OR ASYMMETRIC CENTRE.

- MOST PHYSICAL PROPERTIES WILL BE IDENTICAL.

mp, bp, IR, NMR, R_f refractive index

- ROTATE PLANE POLARIZED LIGHT TO EXACTLY THE SAME

DEGREE, BUT IN OPPOSITE DIRECTIONS. (4)

- OLD NAMES. ENANTIOMER THAT ROTATES LIGHT CLOCKWISE IS CALLED 'd' or '+' ENANTIOMER.

- THE ONE THAT ROTATES IT COUNTERCLOCKWISE, 'l' or '-' ENANTIOMER

- MEASURE VALUE $[\alpha]_D$
"SPECIFIC ROTATION"

$$[\alpha]_D^T = \frac{100 \alpha}{l \times c}$$

'D' is the wavelength of light used (589 nm), T is the temperature it is recorded at

α - OBSERVED ROTATION

l - PATH LENGTH (1 dm) not the same 'l' as above

c - CONCENTRATION g per 100 mL SOLN

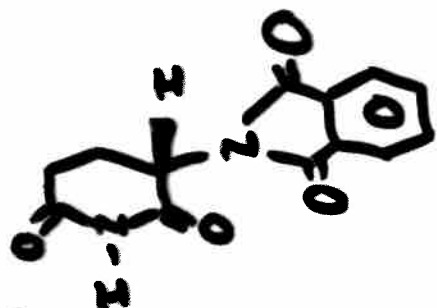
COMPOUNDS WHICH ARE CHIRAL AND ENANTIOMERICALLY PURE ARE "OPTICALLY ACTIVE"

- COMMON TO HAVE A 50:50 MIXTURE OF ENANTIOMERS

$$[\alpha]_D^T = 0$$

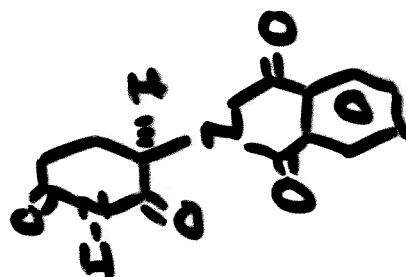
because optical rotation of individual enantiomers cancel out exactly

- RACEMIC MIXTURE (RACEMATE)



(S)-

SEDATIVE
ANTI MORNING
SICKNESS



(R)-

TERATOGEN
(BIRTH DEFECTS)

- HOW DO WE KNOW WHICH IS '+' OR '-' ?
- HOW DO WE NAME THEM IN A LOGICAL FASHION.