

Great Idea ...

Or

Very Bad Idea?





Gatorade Cucumber Lime, 28 oz, 15 Units

Brand: Gatorade Thirst

★★★★★ 41 ratings



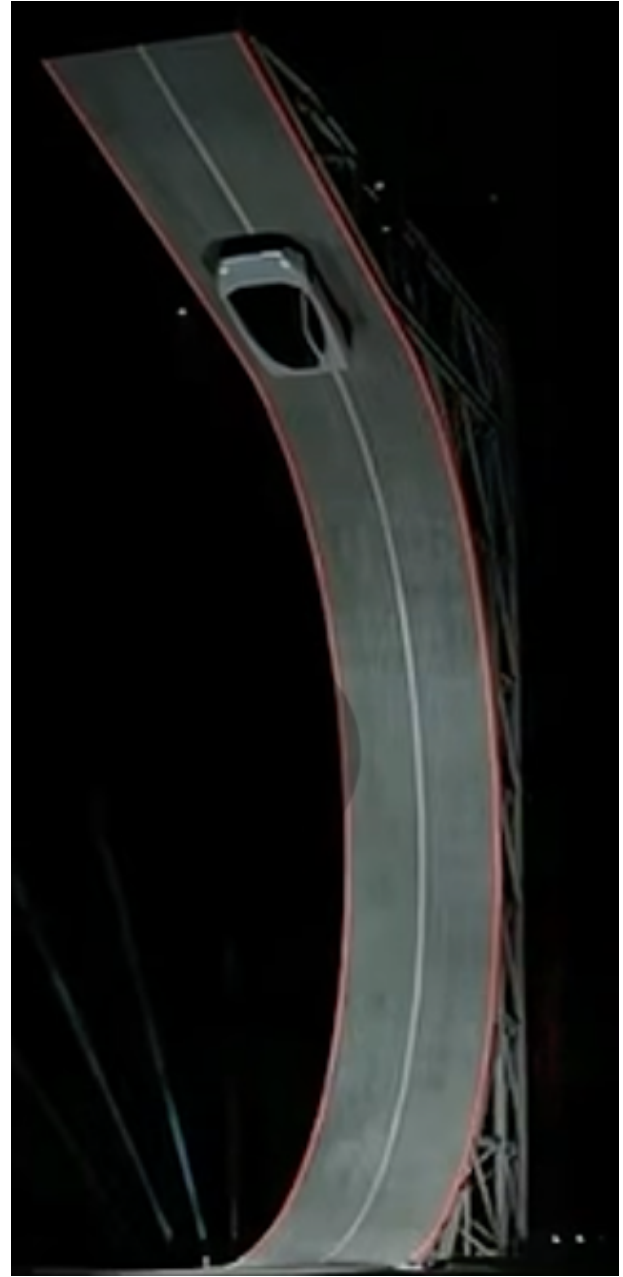
\$50⁹⁹ (\$3.40 / Count)

Get \$50 off instantly: Pay \$0.99 \$50.99 upon approval for the Amazon Rewards Visa Card. No annual fee.

Size: 28 Fl Oz (Pack of 15)

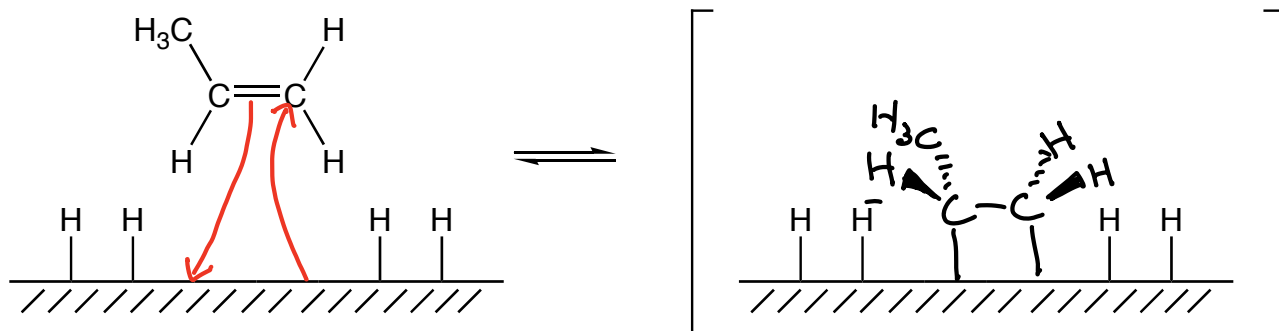
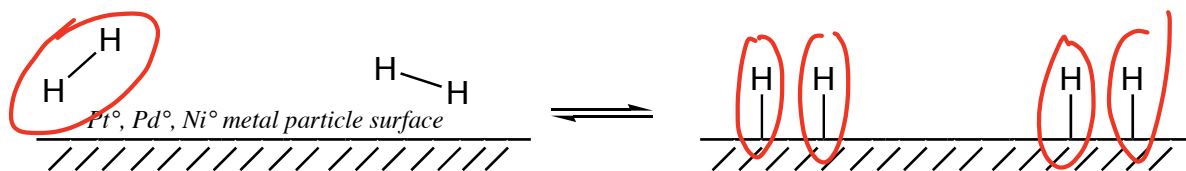
2 Set 28 Fl Oz (Pack of 15) 1 option from \$100.00	3 Set 28 Fl Oz (Pack of 15) --
4 Set 28 Fl Oz (Pack of 15) --	28 Fl Oz (Pack of 15) \$50.99 (\$3.40 / Count)

Item Form	Liquid
Flavor	Lime
Package Information	Bottle
Volume	28 Fluid Ounces
Package Weight	425 Ounces

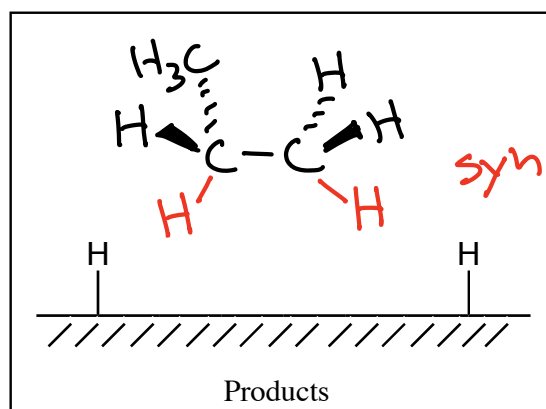


Hydrogenation: H_2 with Pt^0 , Pd^0 , Ni^0

"In the elemental state - a metal"

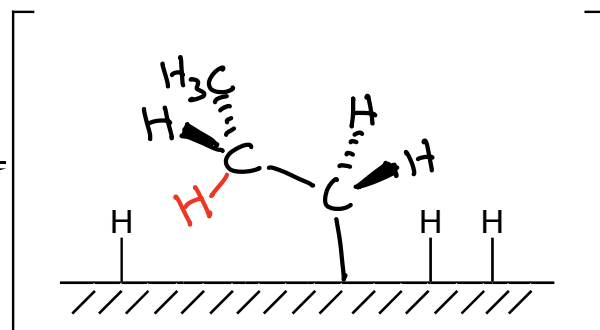


Very fast



Very fast

syn

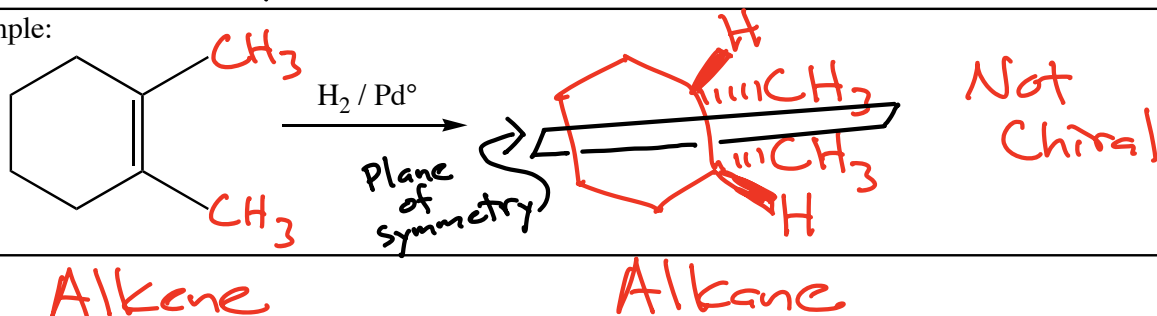


Summary: H_2 adsorbs onto the metal surface.
The alkene adsorbs onto the metal surface.
H atoms transfer to both C atoms $\rightarrow$
on the same face $\rightarrow$ before the C-C bond rotates

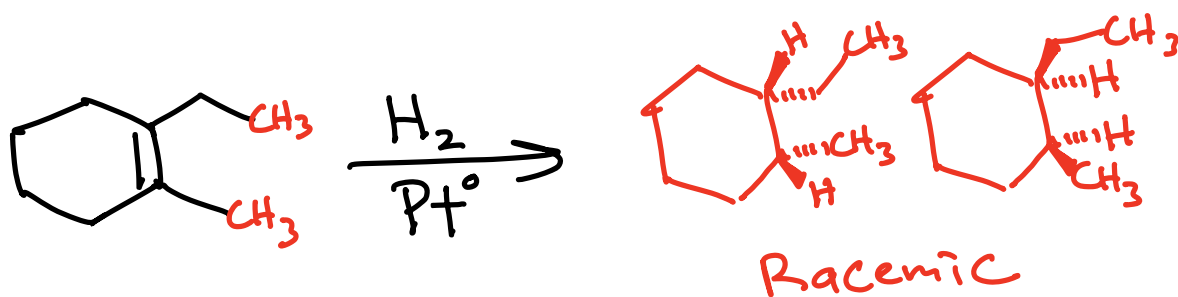
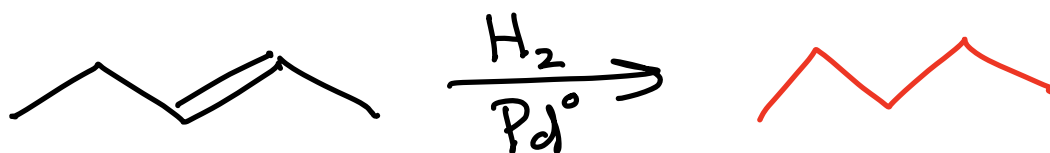
Regiochemistry: N/A

Stereochemistry: Syn

Example:



Examples:



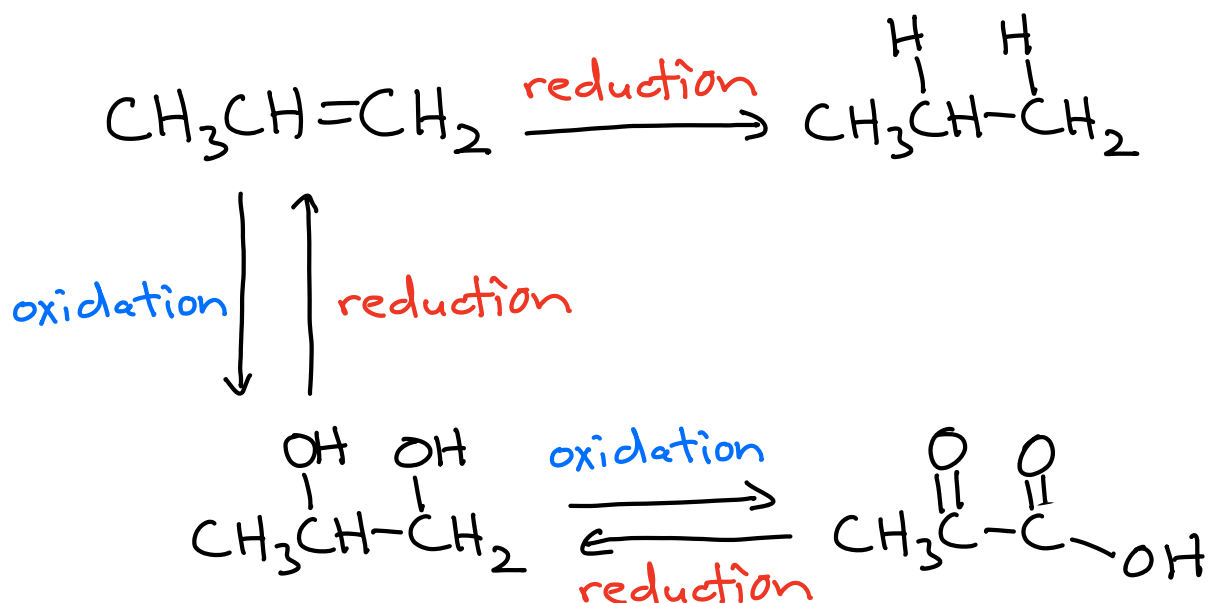
Important definitions for organic chemistry

Oxidation Reaction $\rightarrow$ Net loss of electrons

$\hookrightarrow$ A reaction involving loss of bonds to H atoms and/or increase in the number of π bonds or bonds to O atoms

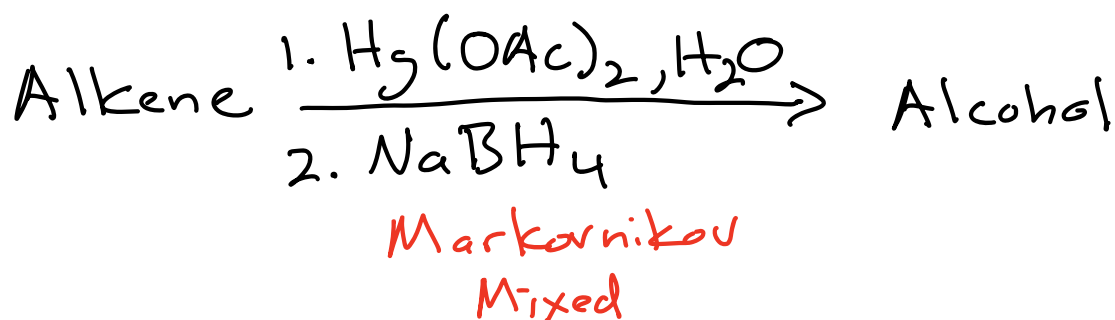
Reduction Reaction $\rightarrow$ Net gain of electrons

$\hookrightarrow$ A reaction involving an increase in bonds to H atoms and/or a decrease in the number of π bonds or bonds to O atoms

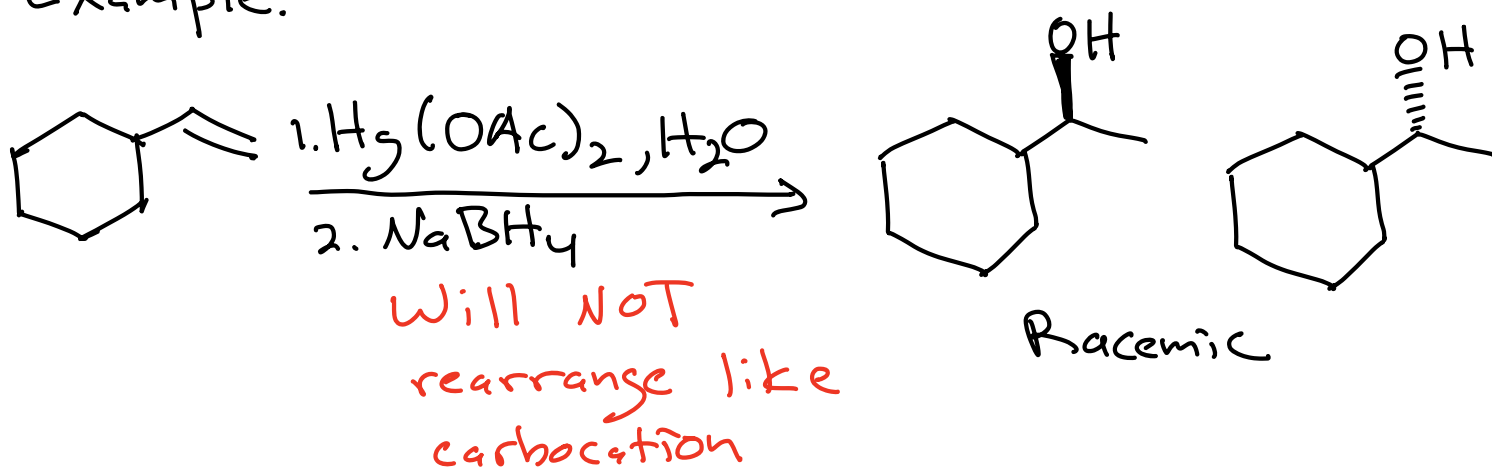


↑↑ ↑↑ ↑↑ ↑↑
All you need to know for 2nd midterm

You do not need to know this next reaction, but I am going to show it to you for reference



Example:



Stinking Molecules! → We have evolved
to avoid spoiled food that would
make us sick

We are
VERY
sensitive
to these
molecules!

products of
bacterial
breakdown



Rotten Fish



Rotten Eggs



Rotten Mammal



Barf!

Neutralize
with a
base →
ammonia
or
baking soda
to remove
the smell!

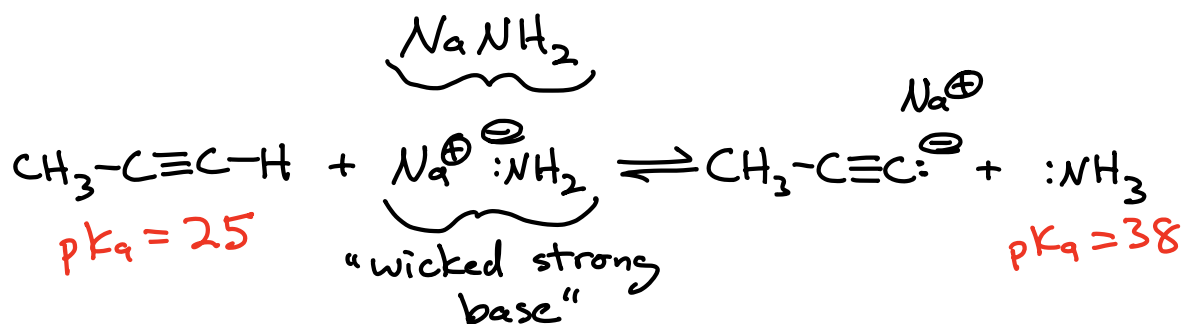
Molecule of the Day

Alkynes $\rightarrow$ similar to alkenes because of the π bonds.

$\rightarrow$ One big difference



Terminal alkynes are relatively acidic



Epic New Reaction



A primary
haloalkane

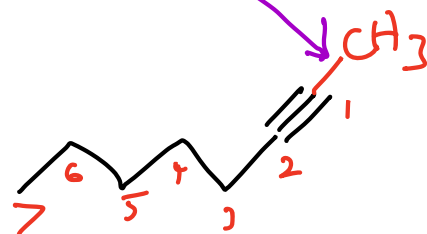
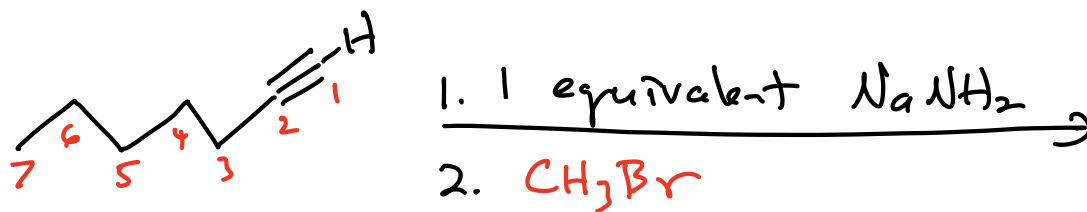
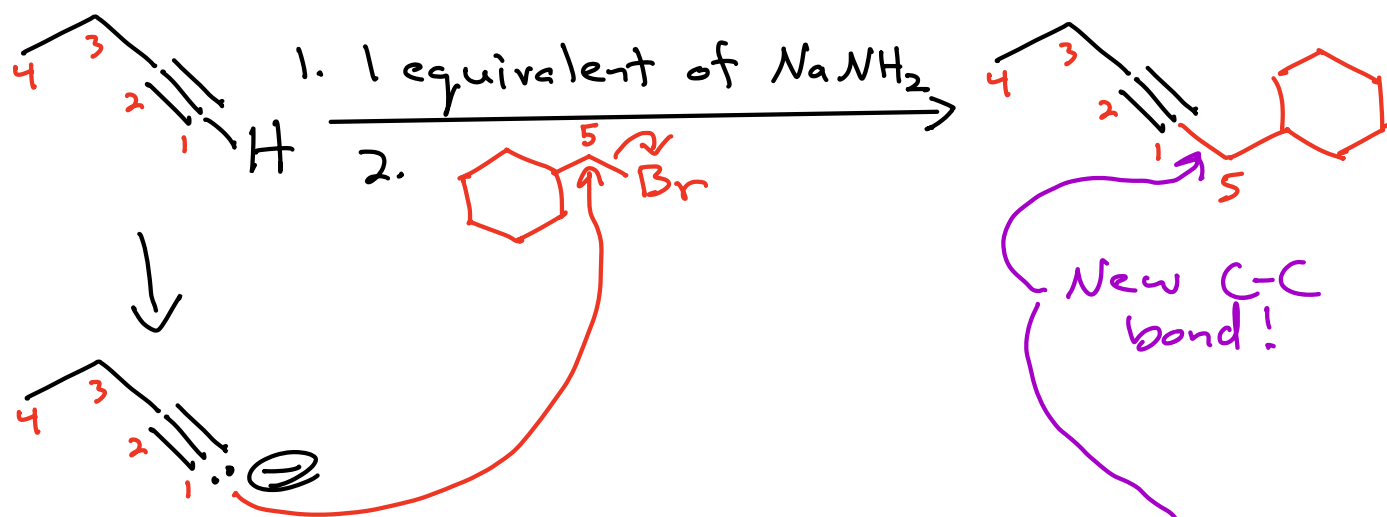


Time capsule: This is an S_N2 reaction. The haloalkane must be primary to avoid an $E2$ reaction.

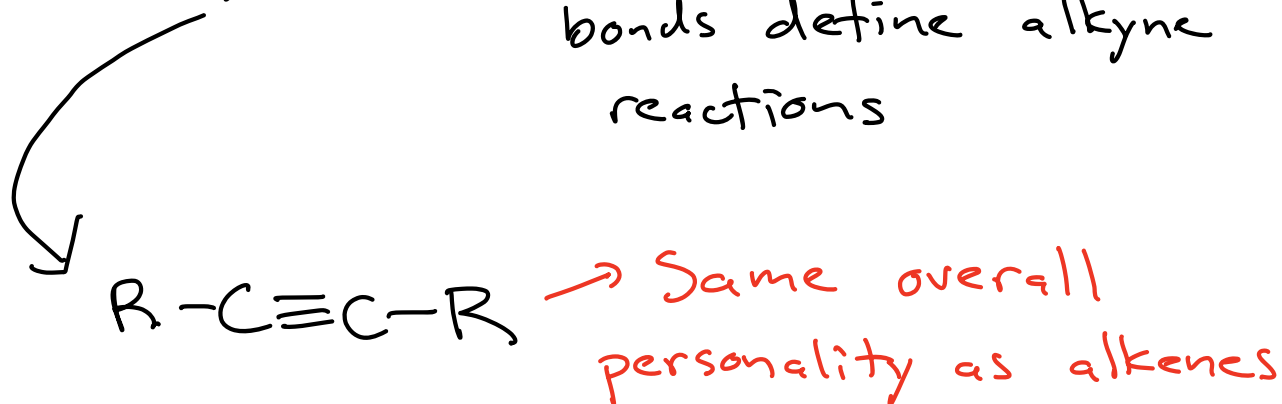
Making C-C bonds allows us to construct larger molecules from smaller ones!

A major goal of
organic synthesis

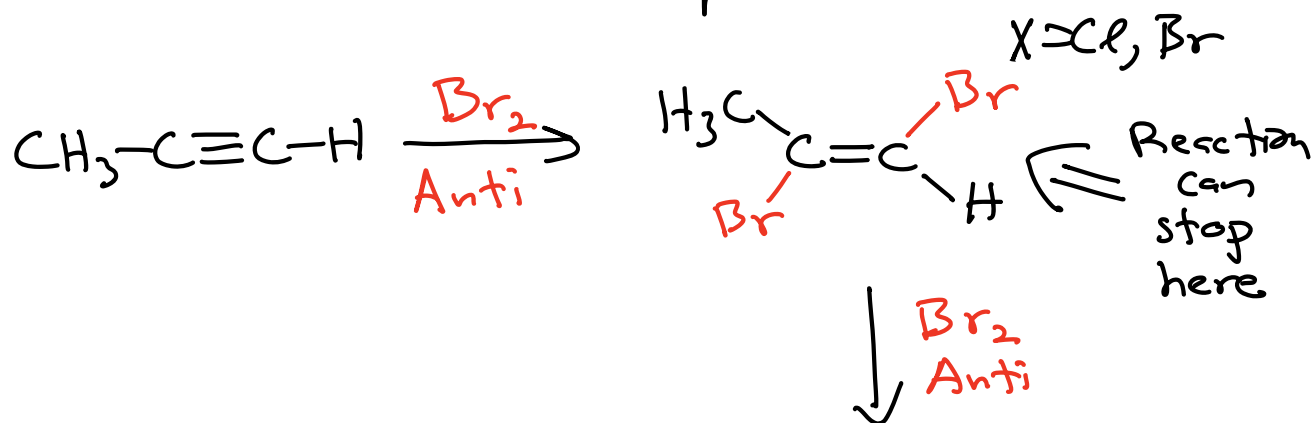
Example:



Alkynes $\Rightarrow$ The two orthogonal pi bonds define alkyne reactions



A) Reaction with 2 equivalents of X_2



Vicinal tetrahalide

"on adjacent carbon atoms"

B) Reaction with 2 equivalents of H-X

X = Cl, Br



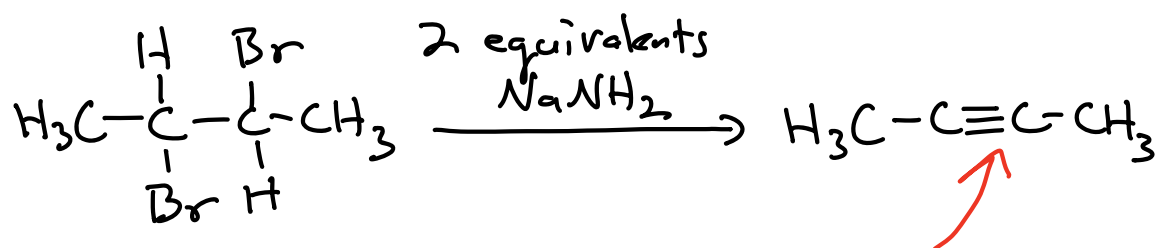
Mechanism involves a cation intermediate

⇒ Markovnikov's rule followed

However, the two X atoms always
end up on the same carbon



c) Conversion of a vicinal dihalide into an alkyne



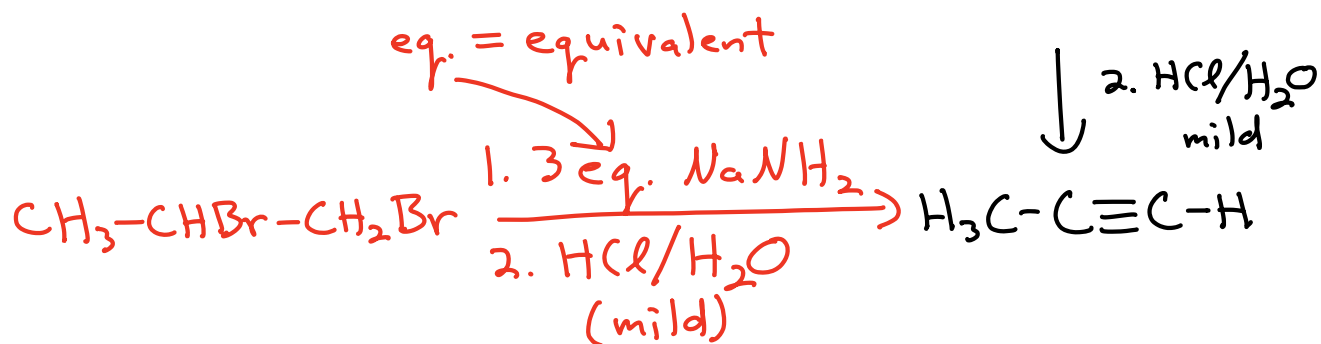
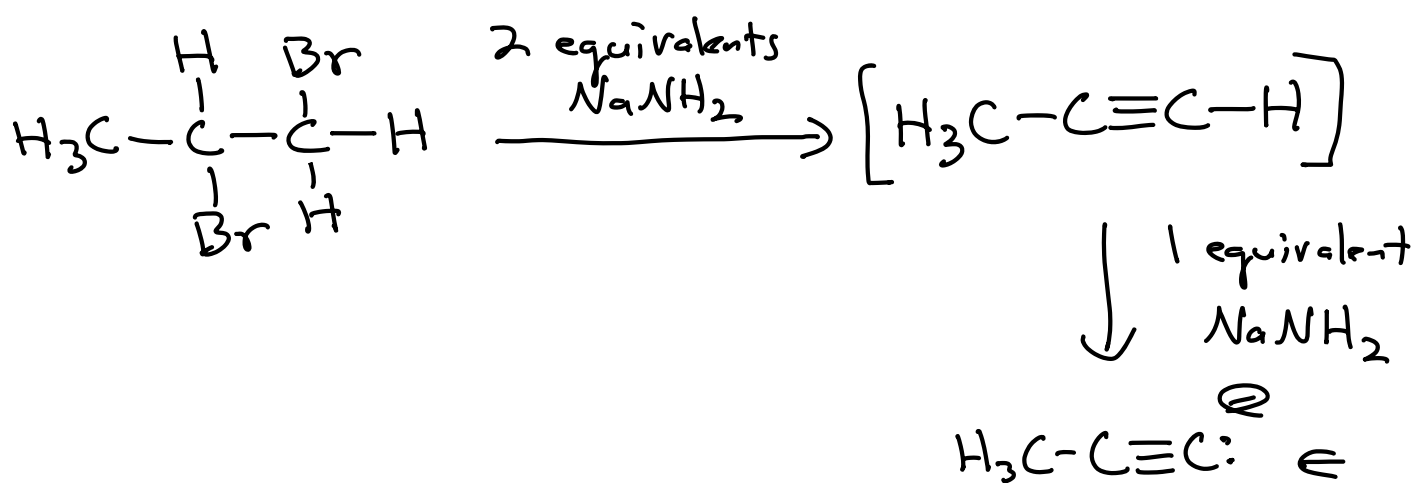
Vicinal dihalide

Note this alkyne is not terminal
(it is not on the end)



Time capsule → This is a double E2 reaction

When creating a terminal alkyne
 you must use 3 equivalents of NaNH_2
 as a first step $\rightarrow$ AND $\rightarrow$ you need a
 second step that is mild acid $\rightarrow \text{HCl}/\text{H}_2\text{O}$



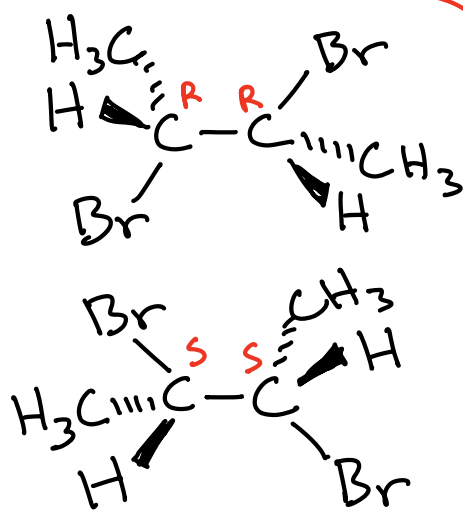
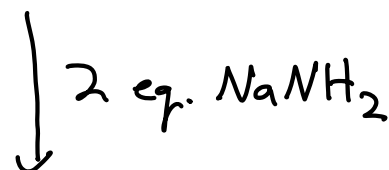
Internal alkyne example:



Big Deal $\rightarrow$ allows
conversion of an alkene
to an alkyne

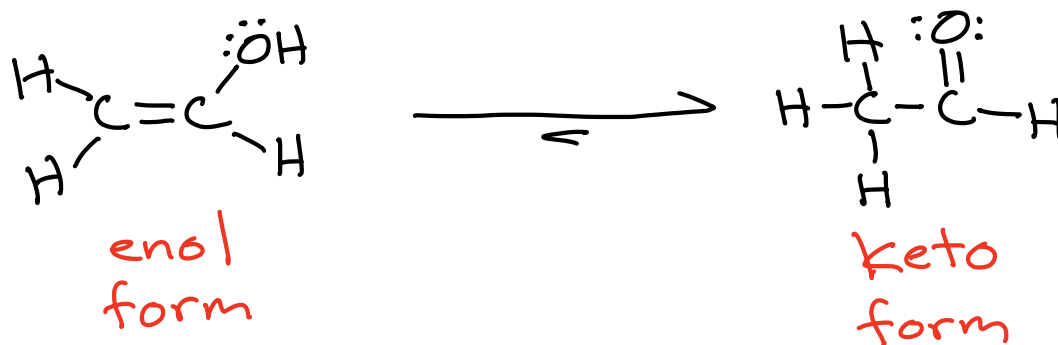


Racemic



Racemic

New Concept → The following species are in equilibrium, and the more stable species is the "keto" form



This process is called "tautomerization" as in "keto-enol tautomerization"

Favored
(a C=O pi bond is stronger than a C=C pi bond)