LEC (18) Chem 30A

(1) ELECTROPHILIC ADDITION TO ALKYNES
- (i) X_2
- (ii) HX
- (iii) OXYMERCURATION (HYDRATION)
- (iv) HYDROBORATION
- (v) REDUCTION

PROBLEMS 10.4, 10.16, 10.17, 10.21-23
READING 10.7-9, 8.1-8.2

QUIZ #2 LOW 0 MEAN 12 HIGH 29

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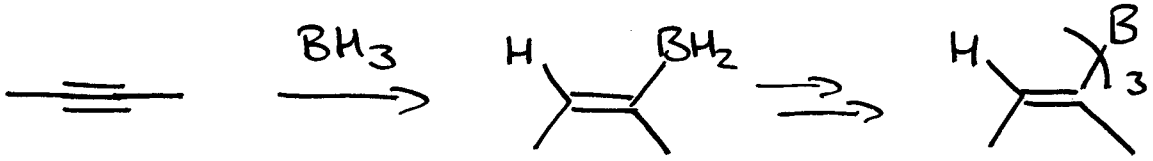
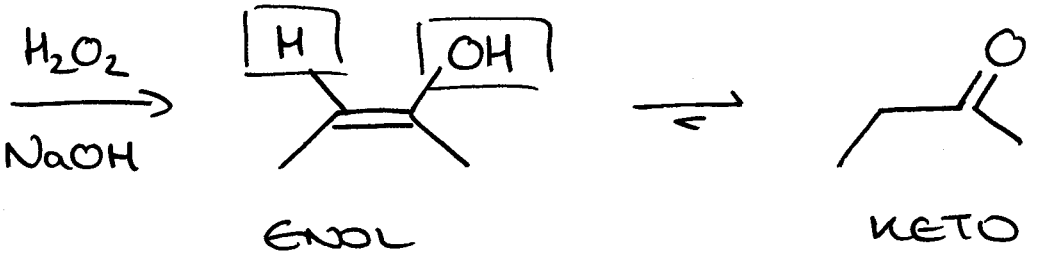
(1) (i) X_2
(ii) HX
(iii) OXYMERCURATION
} see LEC (17) notes pg 5-8

(iv) HYDROBORATION

(R—≡—H terminal R—≡—R non terminal)



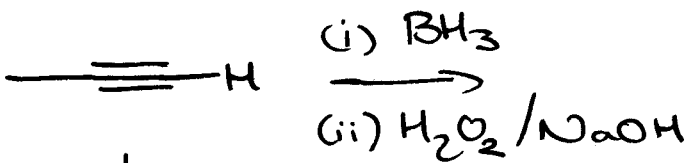
TRIALKENYL BORANE



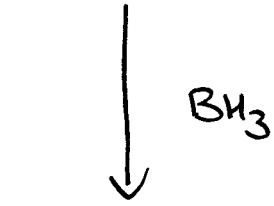
ENOL KETO

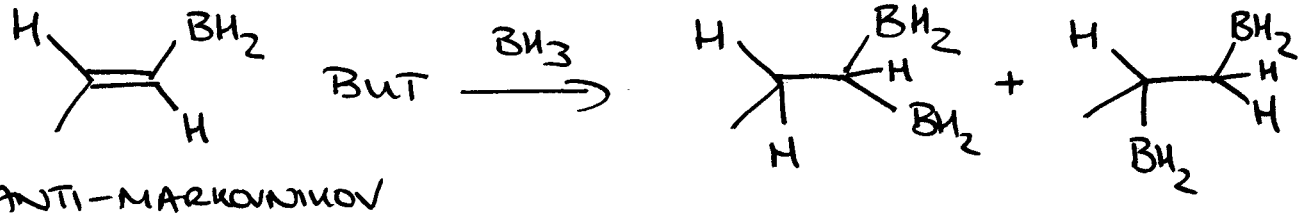
(Same mechanism as for ALKENES)

Terminal alkynes



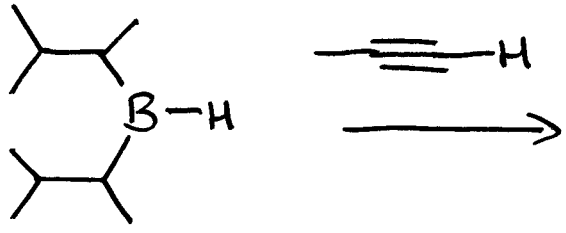
mixture of products

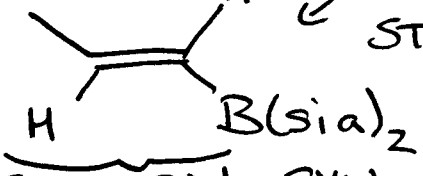




ANTI-MARKOVNIKOV

DISIAMYL BORANE $(sia)_2BH$

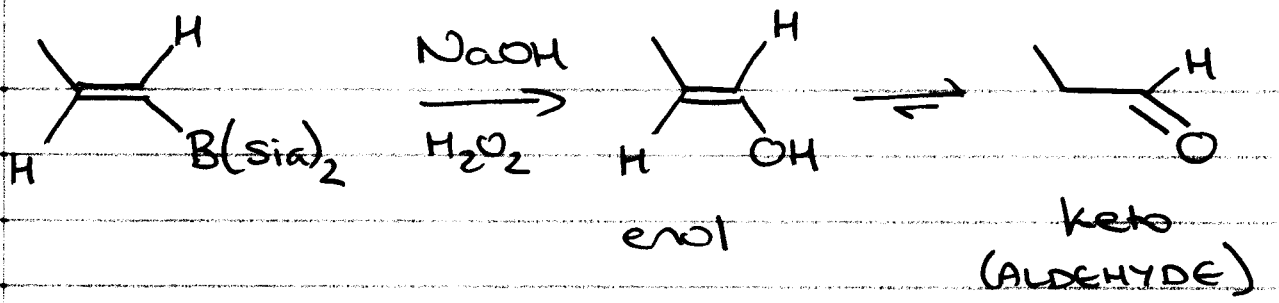




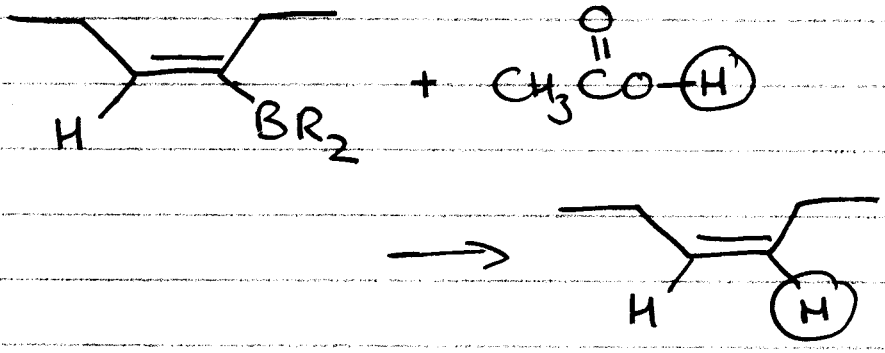
STOPS HERE (only one B–H addition) STERICS

Same side SYN

ANTI MARKOVNIKOV



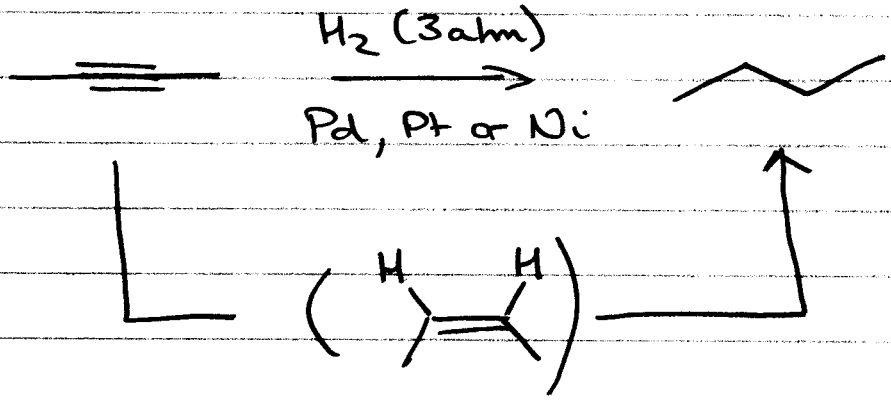
Reaction with acetic acid



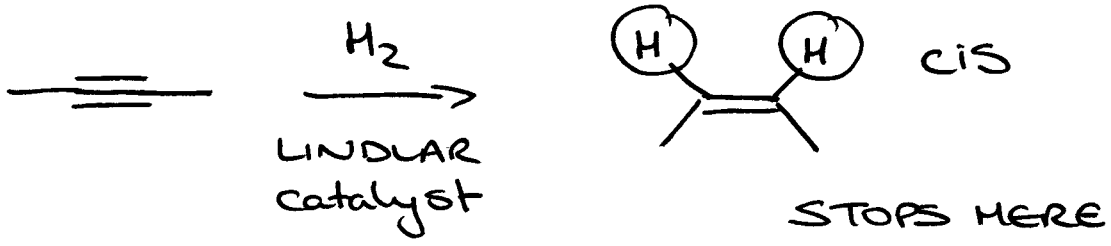
STEREOSPECIFIC (HYDROBORATION/PROTONOLYSIS)

(v) REDUCTION

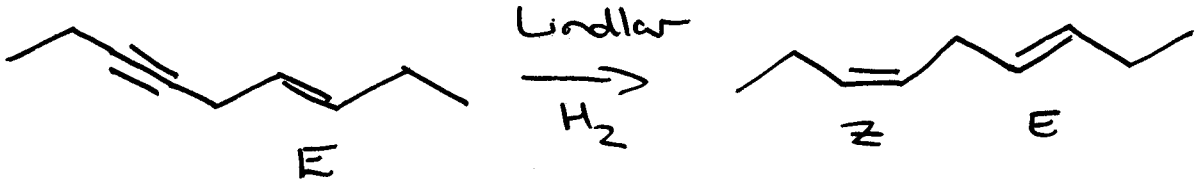
ALKYNE → [ALKENE] → ALKANE



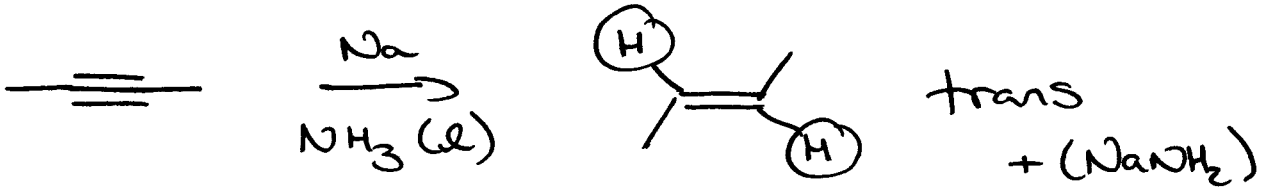
NOT ISOLABLE

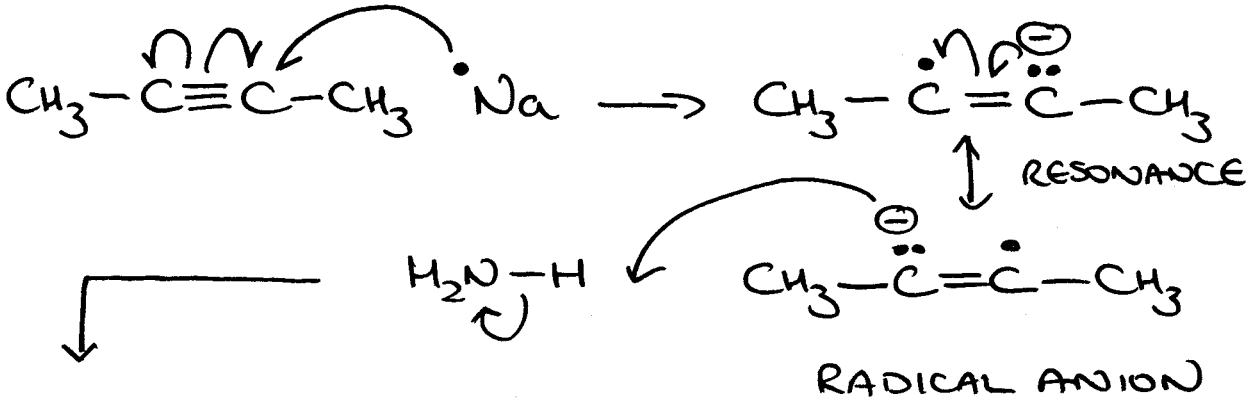


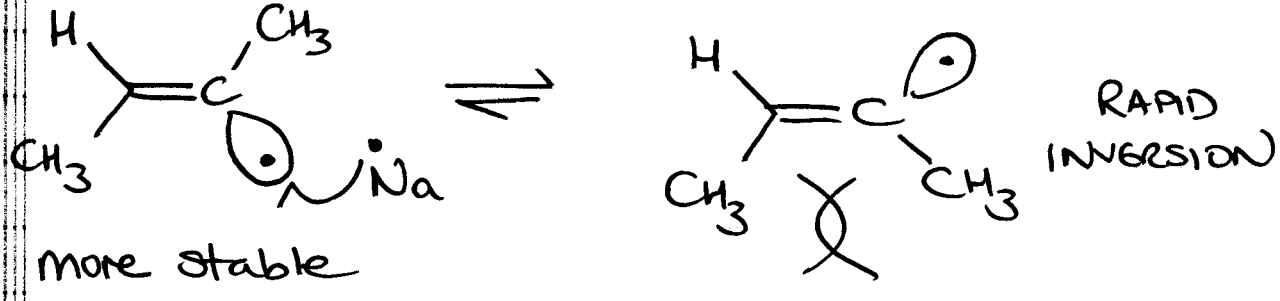
LINDLAR catalyst ($Pd/CaCO_3$ / PbO)
POISONED CATALYST

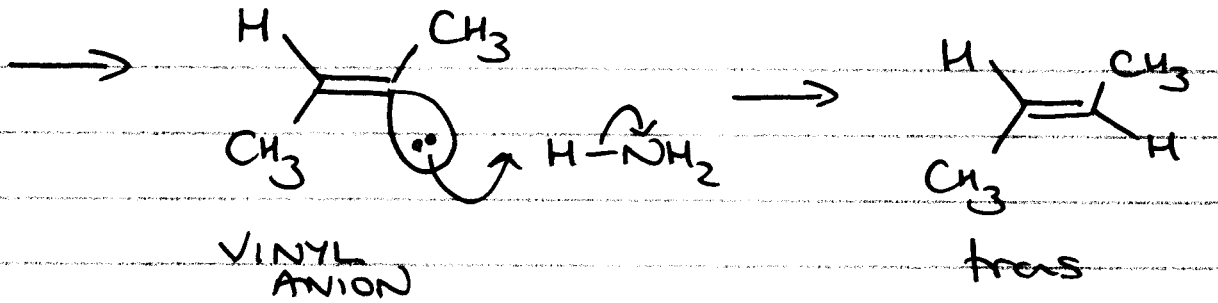


— DISSOLVING METAL REDUCTION









VINYL ANION

trans

Does not work w/ TERMINAL ALKYNES