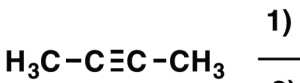
Alkyne Exam Preparation Pack

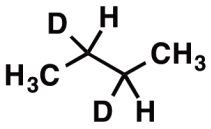
Essential Alkyne Practice Exam Problems

note - all problems can also be found here (link)

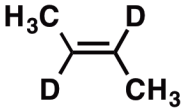
Multiple-Choice #1: What is the major product of this reaction?

Link to answer video
https://bit.ly/2XUYeYP





A



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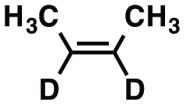
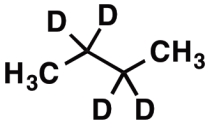


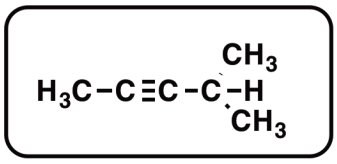
C

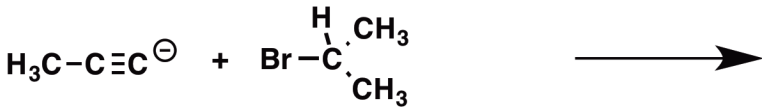


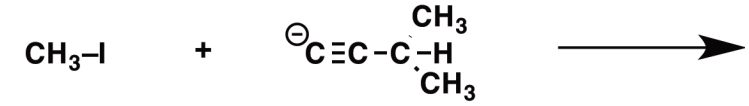
D

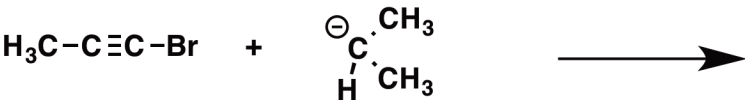
Multiple-Choice #2: Pick the best reaction conditions that will synthesize this alkyne

https://bit.ly/2WoM9L0



A 

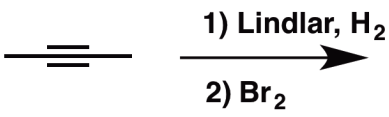
B 

C 

D 

Multiple-Choice #3: Which set(s) of conditions produces a meso product from 2-butyne? https://bit.ly/3odxPQP

A



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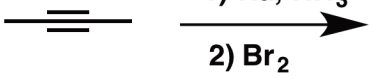

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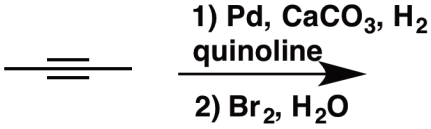
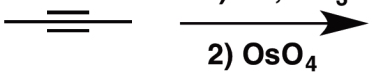
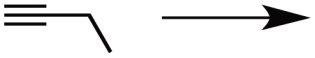


D



Multiple-Choice #4: Which of the following reactions does NOT give a ketone as a product ? https://bit.ly/3AREBPV

A



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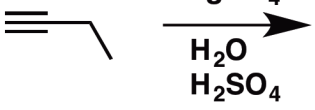

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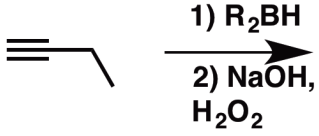
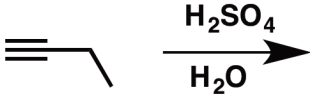
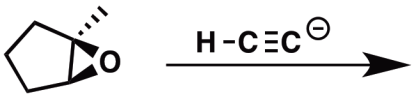


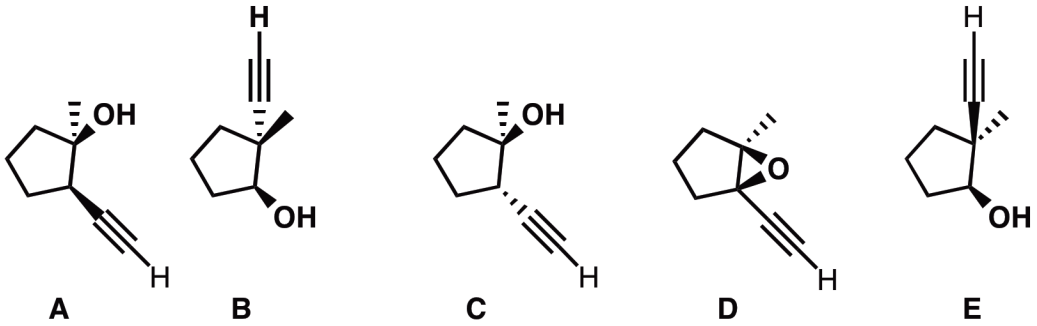
D



Multiple-Choice #5: [Assuming you have covered epoxides] , choose the major product

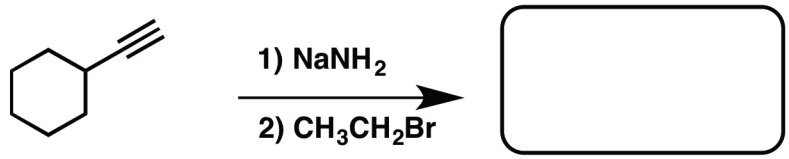
https://bit.ly/3okF4GL

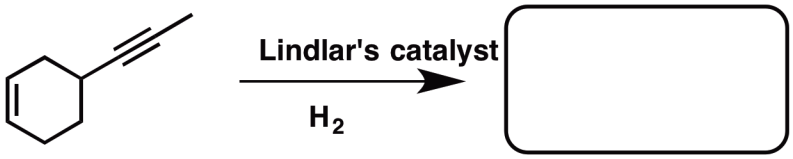


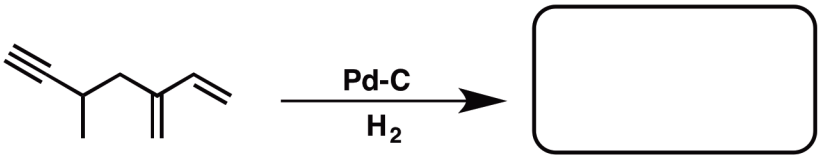


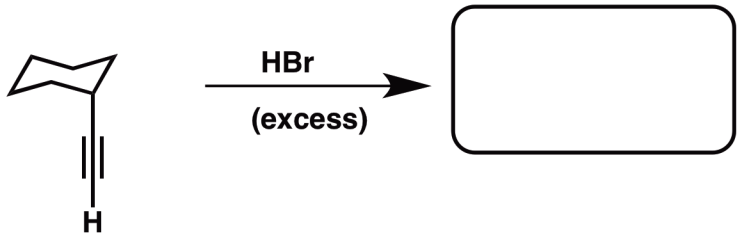
Fill In The Blanks #1:

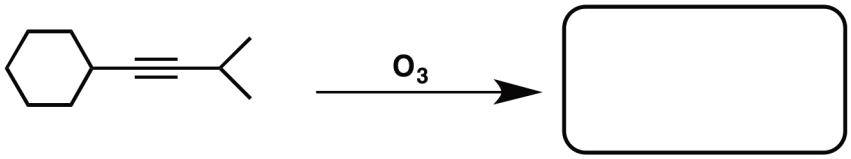
https://bit.ly/3um7CR2



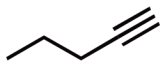




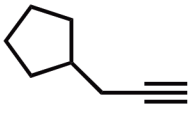




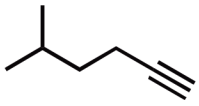
Fill In The Blanks #2: https://bit.ly/3zRUVyJ



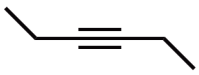
$HgSO_4$
H_2SO_4/H_2O



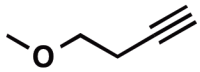
9-BBN
H_2O_2, NaOH



1) HCl (1 equiv)
2) HBr (1 equiv)



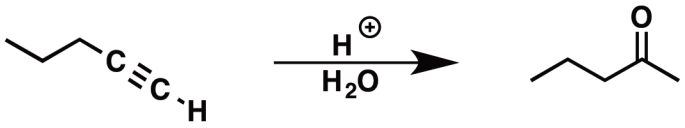
Na / NH_3



$KMnO_4$
Acid

Mechanism#1. Draw a mechanism for the following reaction

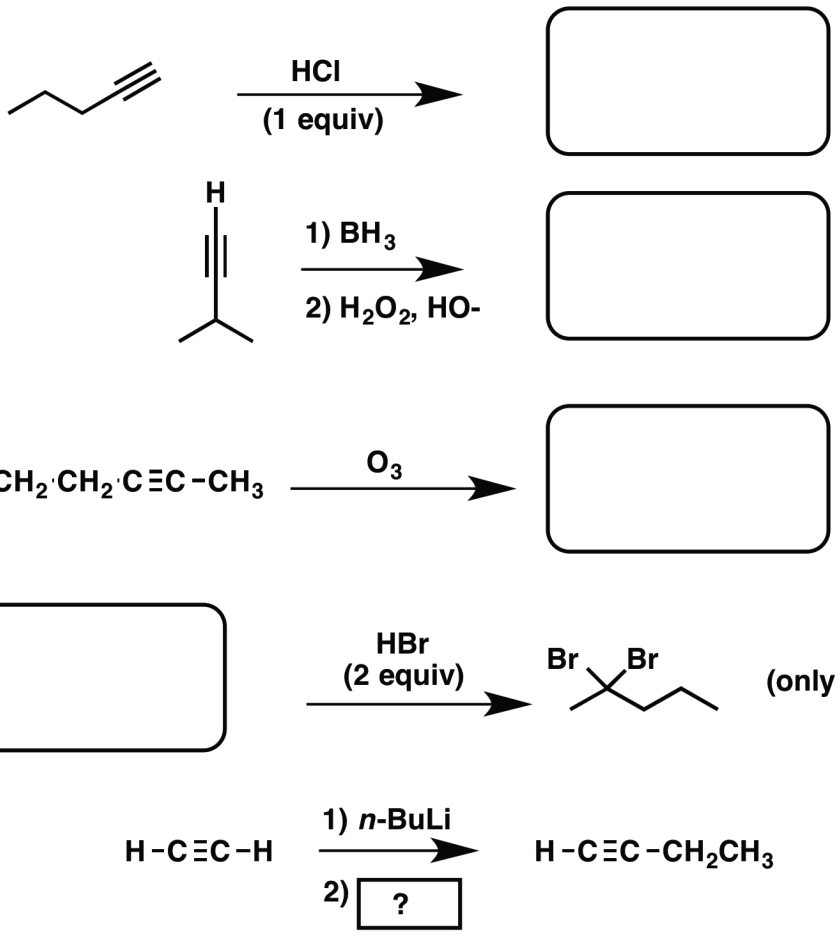
https://bit.ly/3oh57i0



$H^{\oplus}$
H_2O

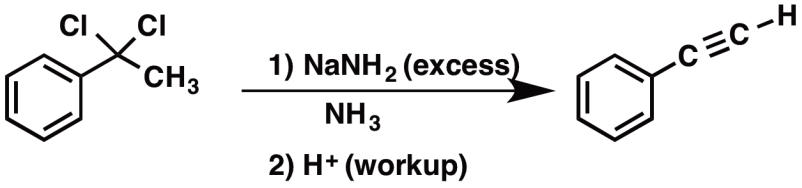
Fill In The Blanks #3:

https://bit.ly/2Y0uKJt



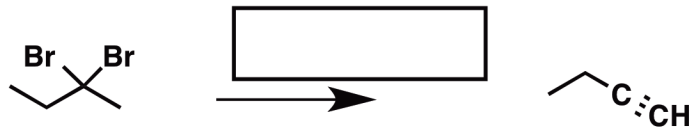
Mechanism problem #2:

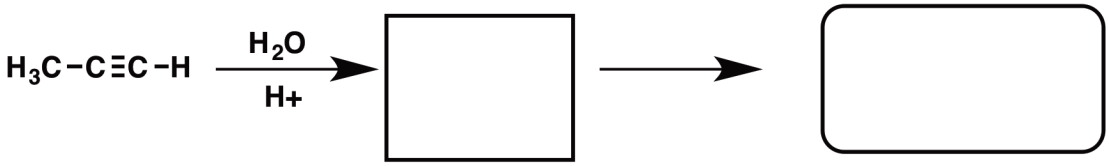
https://bit.ly/3kOCu9X



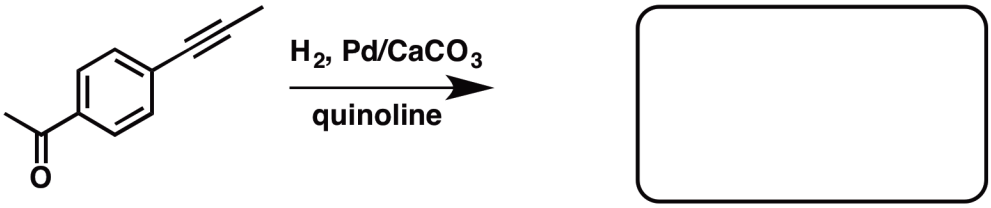
Fill In The Blanks #4:

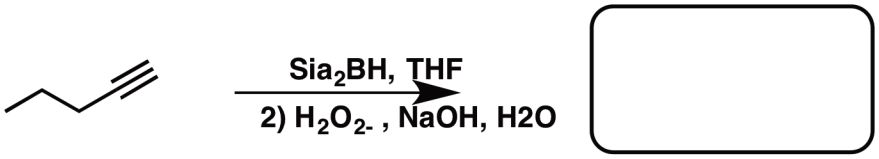
https://bit.ly/3AS2cjg

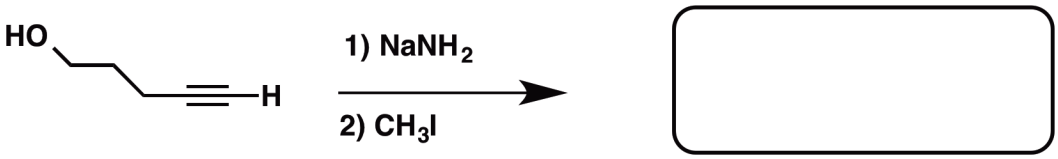


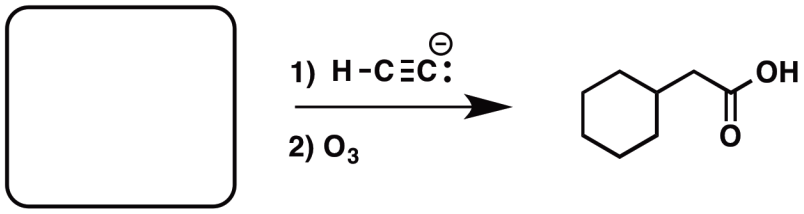


neutral intermediate



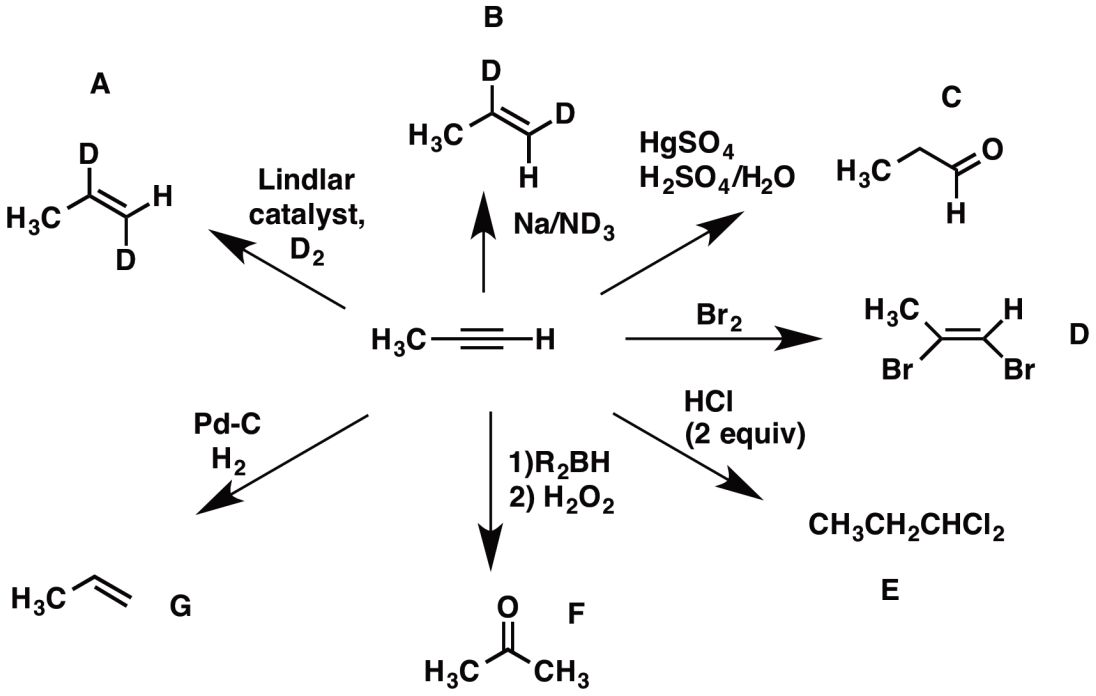






Correct The Mistakes. Each of the reaction schemes shown below is wrong in some fundamental way.
1) For each reaction, draw the product that should form instead
2) If there is a reaction that *should* form the product shown below, indicate it.

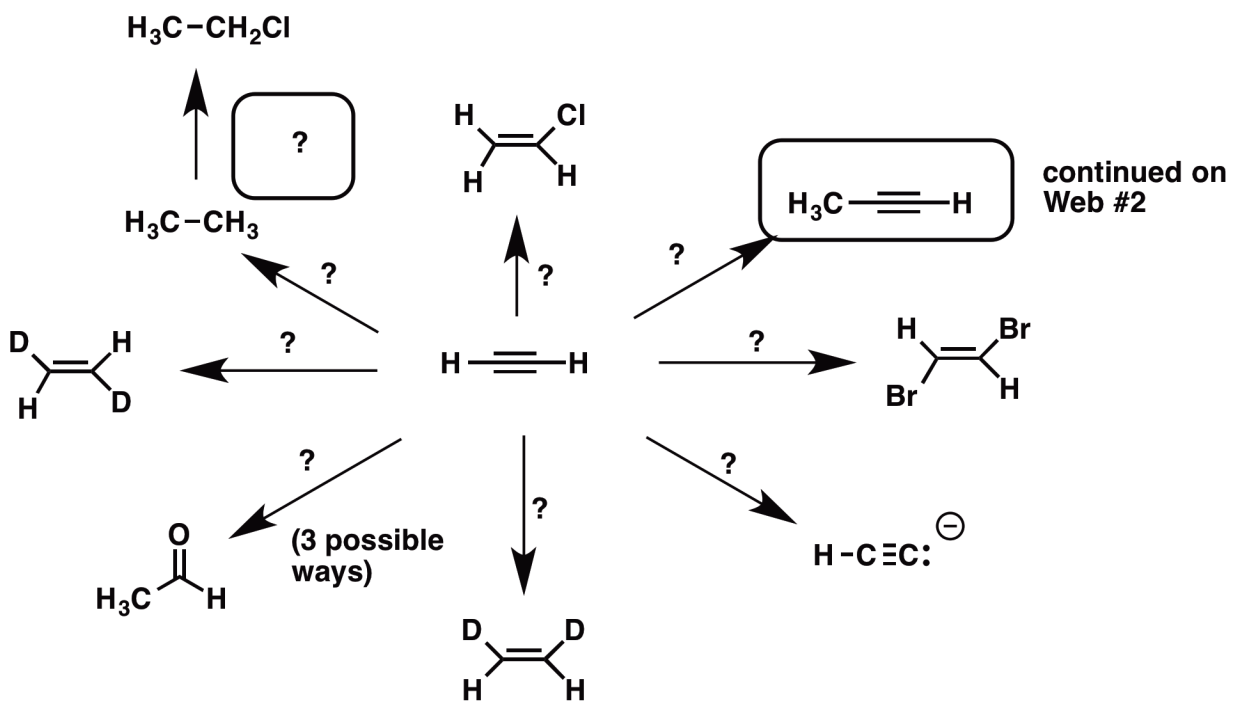
https://bit.ly/3kVqELn



REACTION	1) Correct product	2) Correct reagent
A		
B		
C		
D		
E		
F		
G		

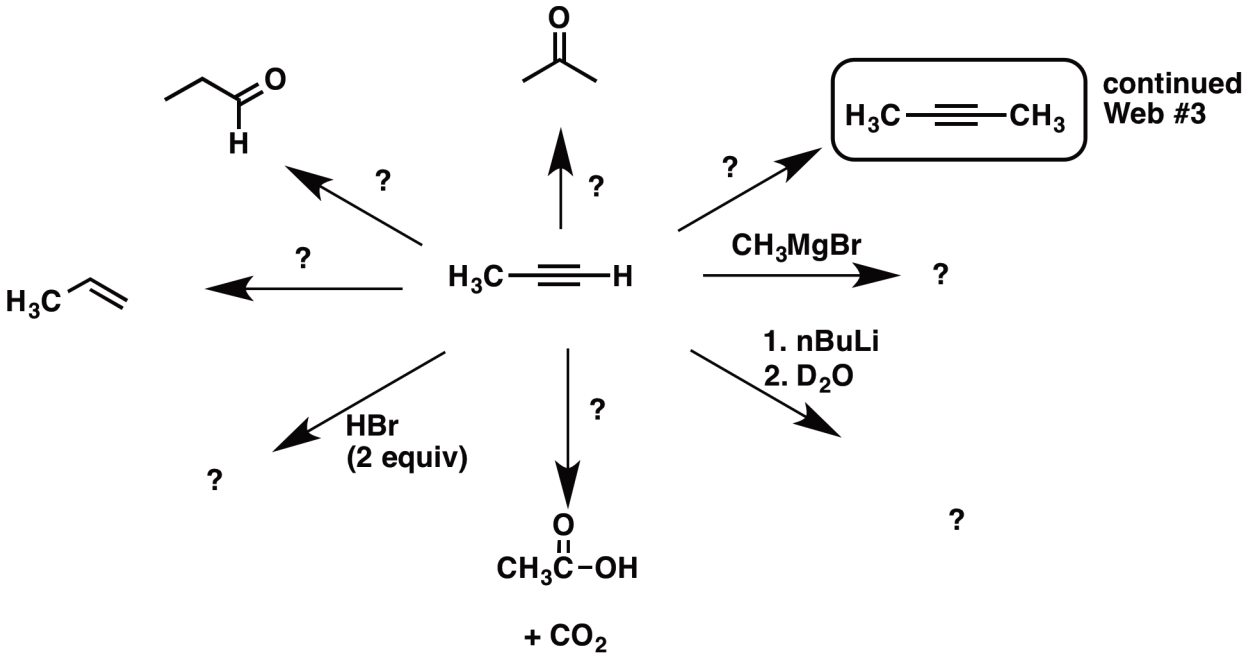
WEB OF REACTIONS: Question #1

https://bit.ly/2XQh9DX



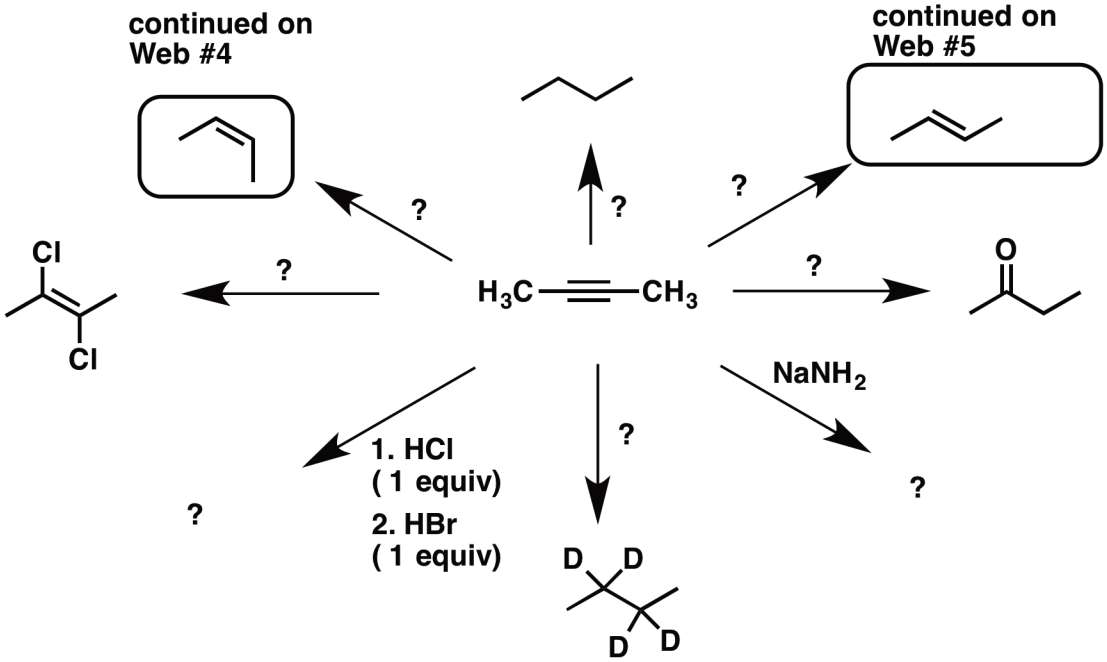
WEB OF REACTIONS: Question #2

https://bit.ly/3ieWdxV



WEB OF REACTIONS: Question #3

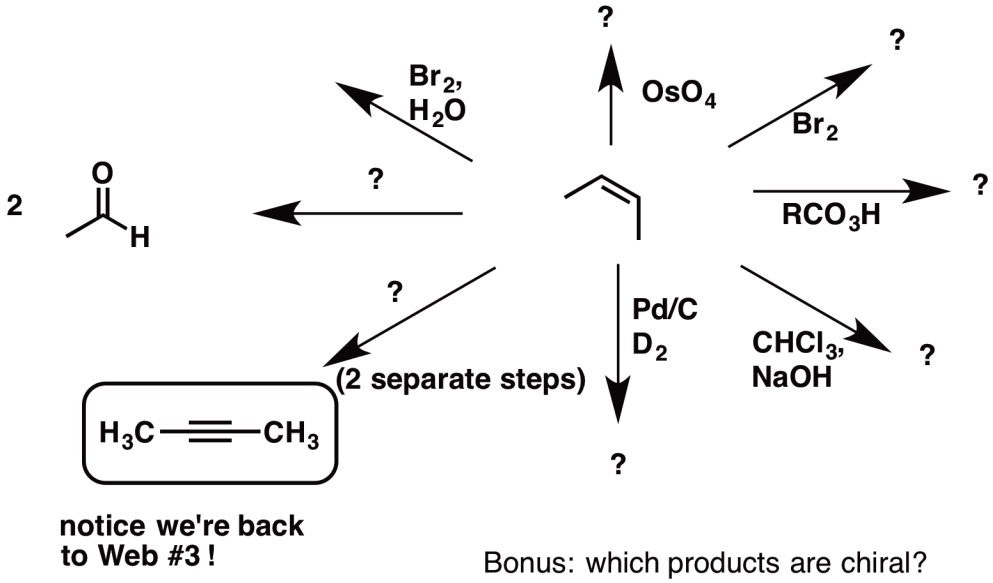
https://bit.ly/3um8DZm



WEB OF REACTIONS: Question #4

https://bit.ly/3usmEoI

pay close attention to stereochemistry!



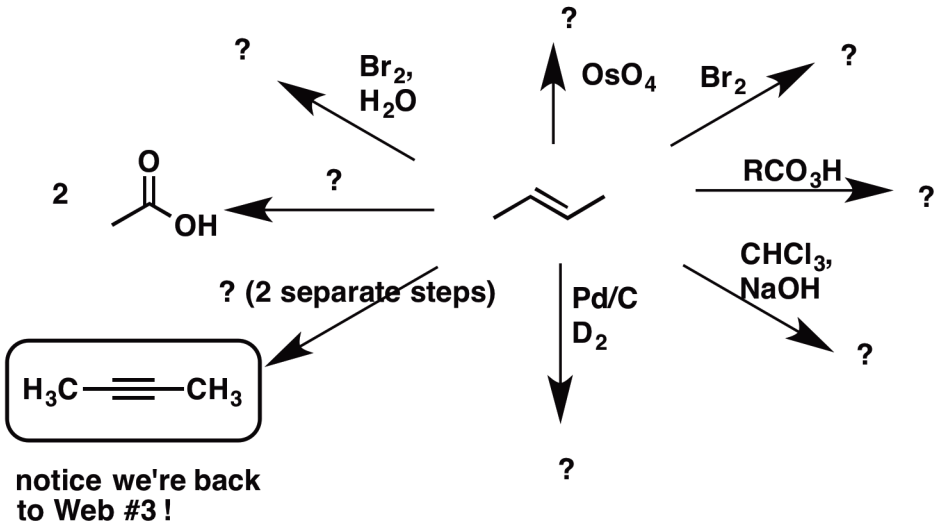
notice we're back
to Web #3 !

Bonus: which products are chiral?

WEB OF REACTIONS: Question #5

https://bit.ly/3APbKLW

pay close attention to stereochemistry!

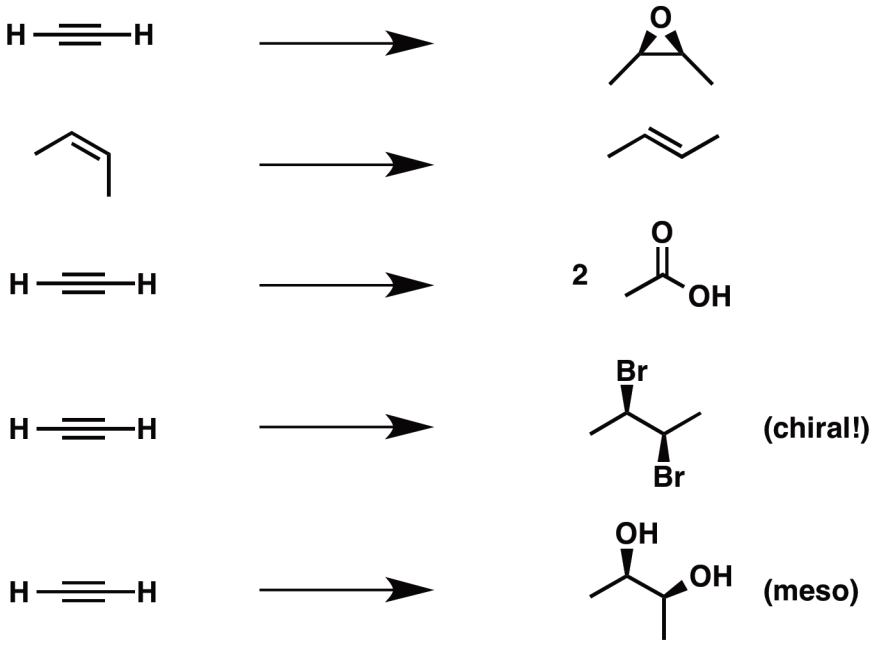


Bonus: which reactions produce chiral products?

Once you're done the Web Of Reactions...

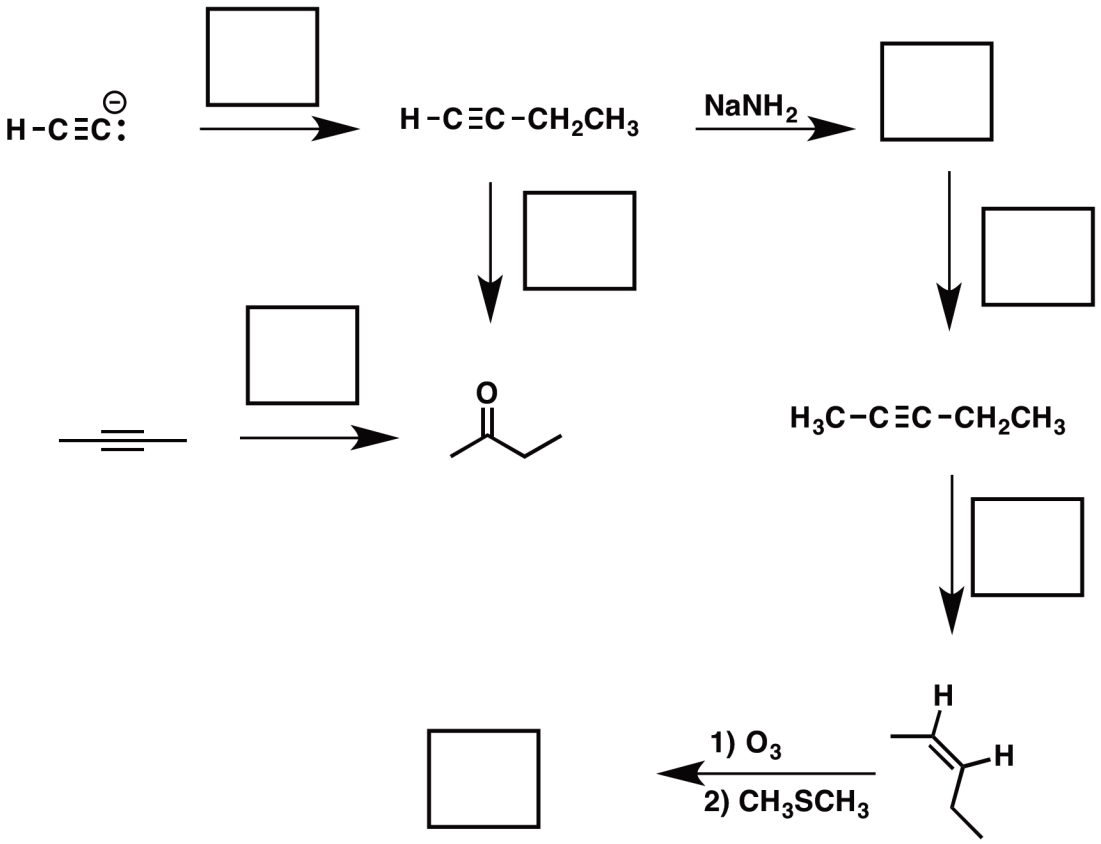
https://bit.ly/39WOHD7

Outline the following syntheses: if you are successful, you are ready for synthesis!



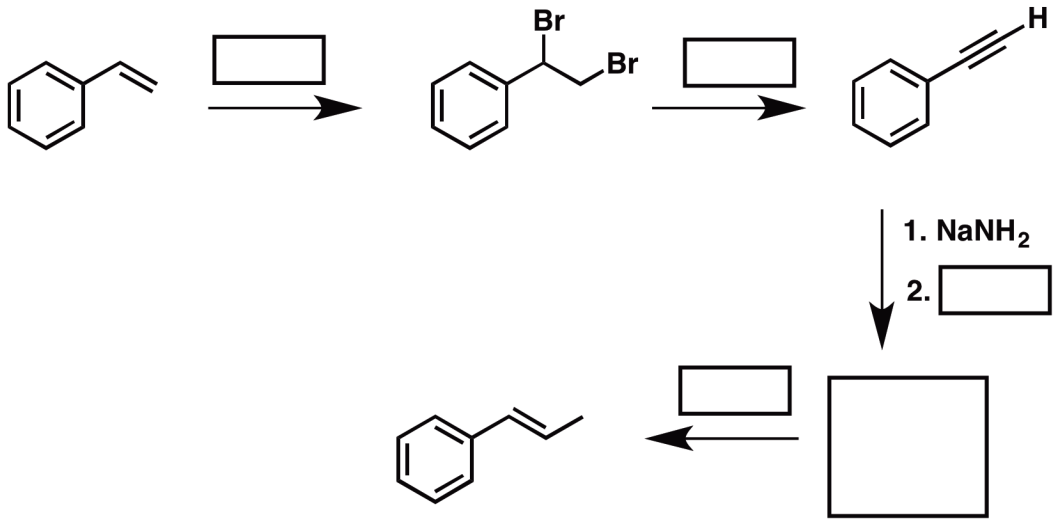
Road Map #1

https://bit.ly/3m0q8Le



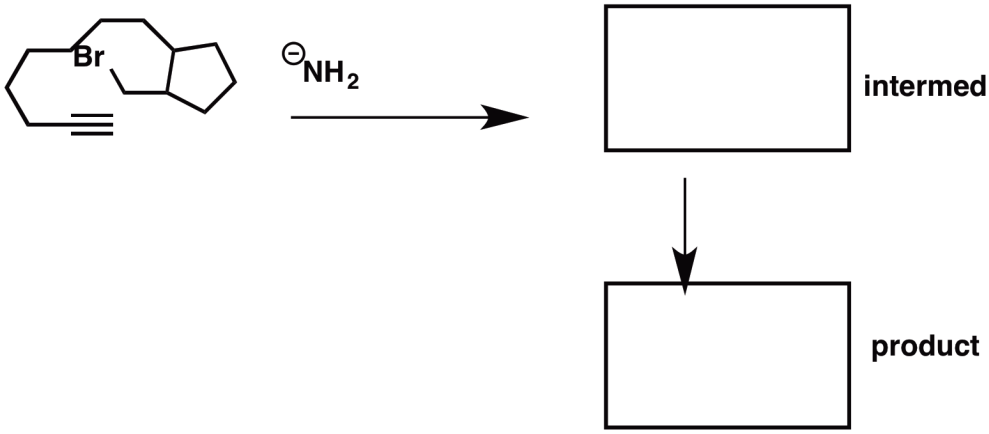
Road Map #2

https://bit.ly/3kRg3kx

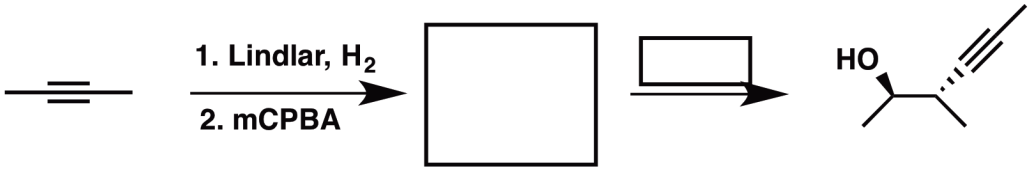


Roadmap #3 (Mini Roadmaps)

https://bit.ly/39IZINV



(Mini Roadmap #2)

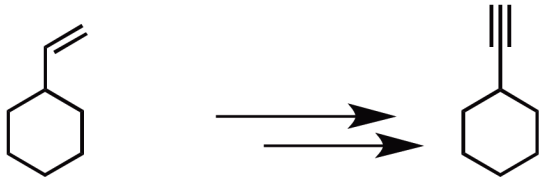


Synthesis (1)

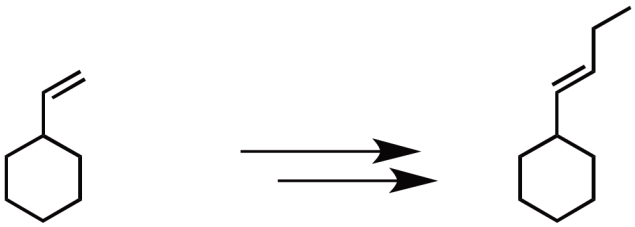
https://bit.ly/3ulcLci

Show how you would perform the following transformations:

a)

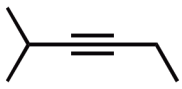


b)

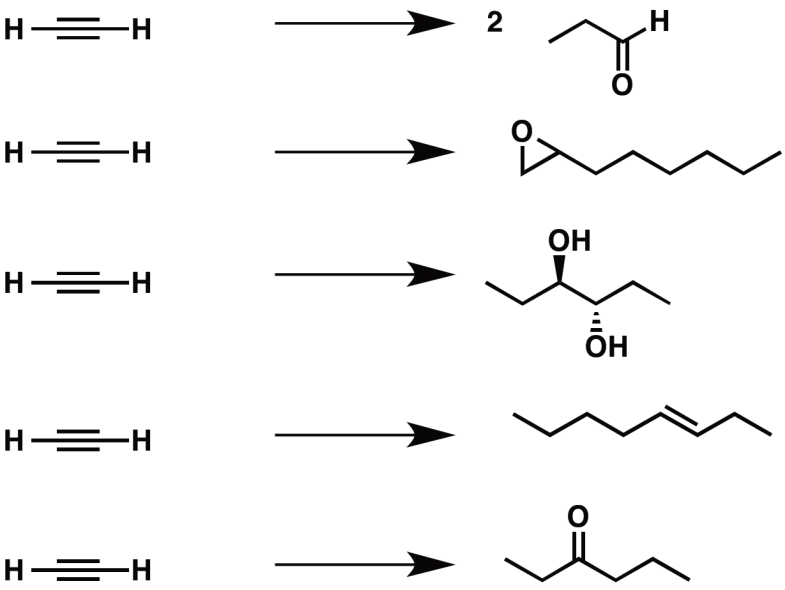


Show a reaction that would make this in one step from an acetylide and an alkyl halide

c)



Synthesis (2)
Starting from acetylene as the carbon source and any reagents of your choice, how would you make each of the following molecules?



https://bit.ly/2Y7FmpQ

https://bit.ly/3uklk5Q

https://bit.ly/3AQ7Gv9

https://bit.ly/3iecK50

https://bit.ly/3m6kfw0