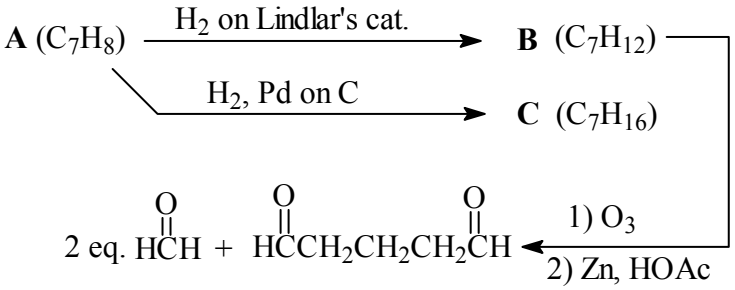
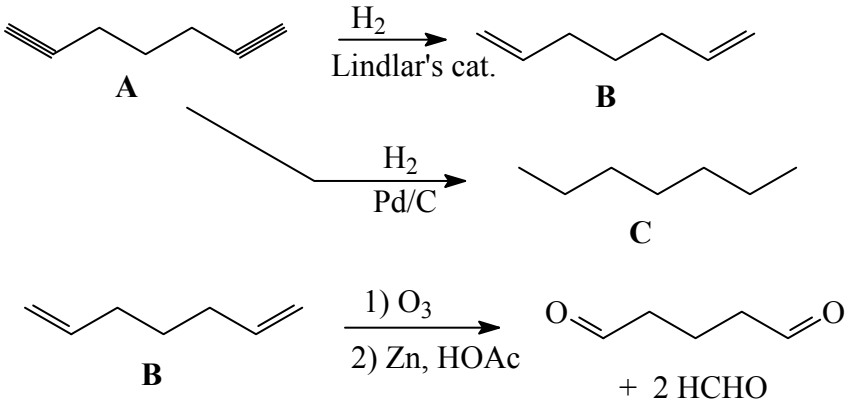
CHM 201
Roadmap Problems

1. An unknown compound (**A**) has a formula of $\mathbf{C_7H_8}$. Treatment of **A** with H_2 on Lindlar's catalyst gives compound **B** (C_7H_{12}). Treatment of **A** with H_2/Pd on carbon (standard hydrogenation) gives compound **C** (C_7H_{16}). Ozonolysis of **B** followed by a Zn/acetic work-up gives pentanedial and 2 equivalents of formaldehyde.

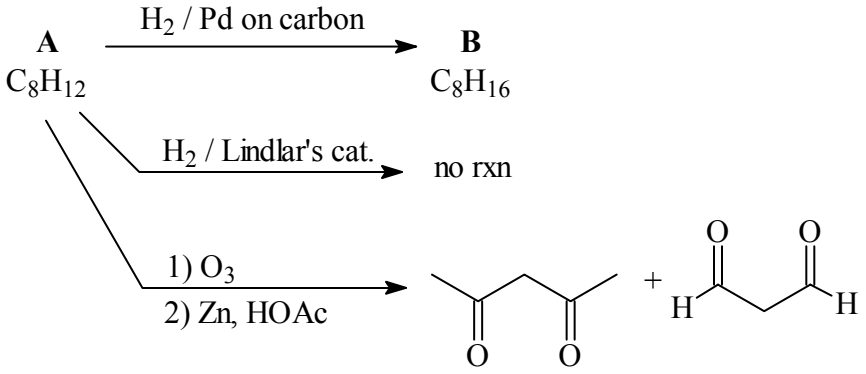


Propose structures for **A**, **B**, and **C** that are consistent with these data.

Compound A has 4 degrees unsaturation
reaction with H_2, Lindlar's catalyst results in the reaction
w/ 2 mol equivalents of H_2 , thus 2 triple bonds reacted



2. An unknown compound (**A**) has a formula of $\mathbf{C_8H_{12}}$. Treatment of **A** with H_2/Pd-carbon gives **B** (C_8H_{16}). Treatment of **A** with H_2 on a Lindlar catalyst gives no reaction. Ozonolysis of **A** followed by workup with Zn, HOAc affords 2,4-pentanedione and propanedial shown below.



There are 3 sites of unsaturation in **A**.

a) How many double bonds does **A** have? **2 (2 eq. of H_2 reacted)**

b) How many triple bonds does **A** have? **0 (no rxn w/ H_2, Lindlar)**

c) How many rings does **A** have? **1 (one site remains)**

d) Propose structures for both **A** ***and*** **B** that are consistent with these data.

A **B**