Discussion Section

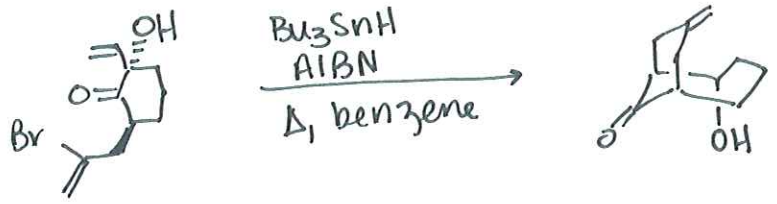
RADICAL CHEMISTRY

Tips for Radical Mechanisms:

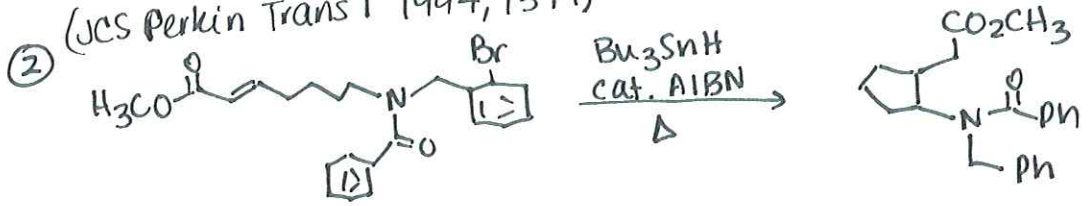
1) Count 5 (especially helpful for H-abstractions)
2) Anything that stabilizes a cation OR anion stabilizes a radical.
3) Use ↷ (NOT ↷)
   ↑ pushing 1 e⁻ (need 2 of these to make a bond)
   ↑ pushing 2 e⁻s.

Extra Practice Problems: Draw reasonable arrow-pushing mech's:

① (Org Lett 2001, 3, 1181)



② (JCS Perkin Trans 1 1994, 1377)

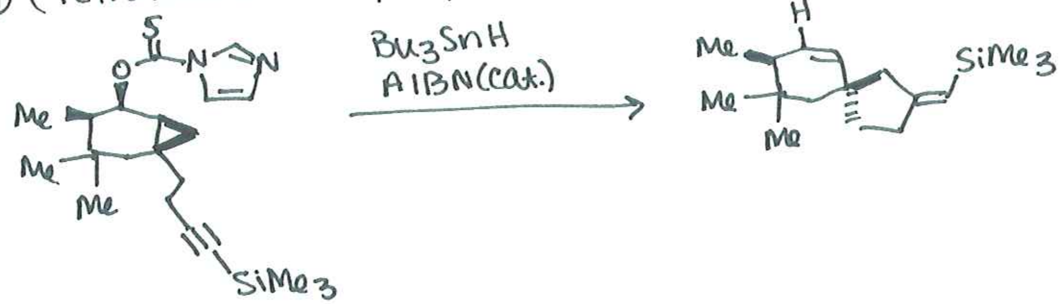


③

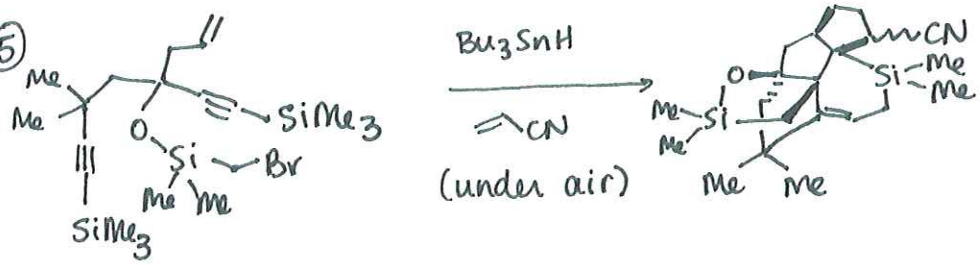
(ACIE 2002, 41, 4321)

(Practice Problems- continued)

④ (Tetrahedron 1992, 48, 8031)



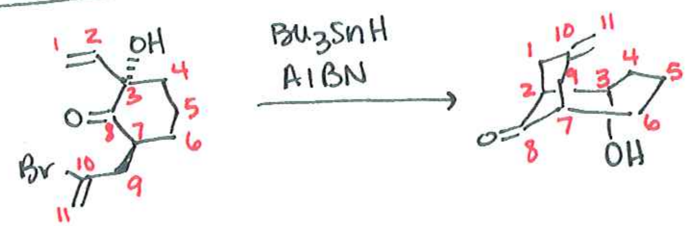
⑤



(JOC 1998, 63, 6764)

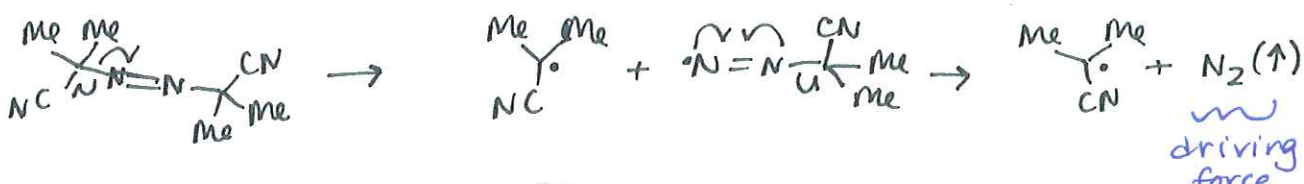
Practice Problems - Answers

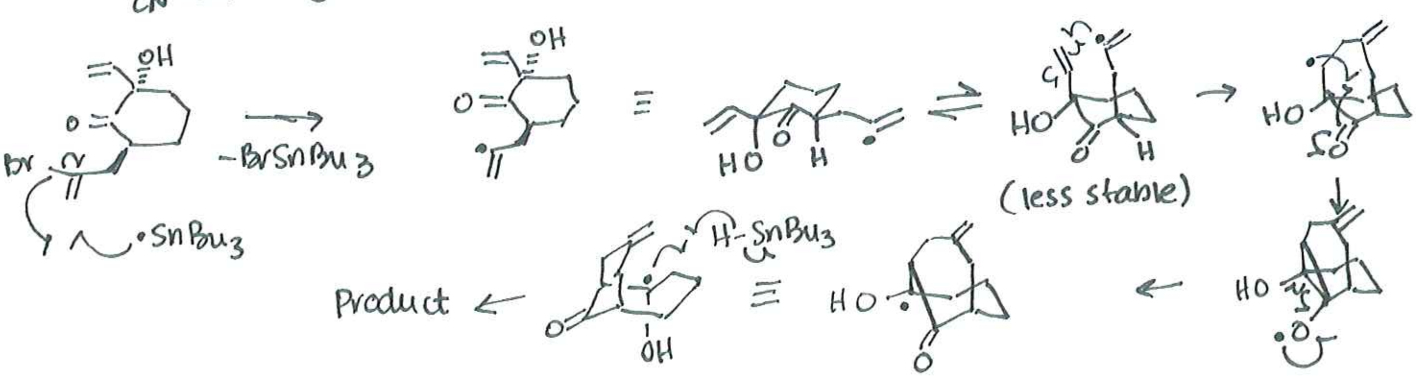
①

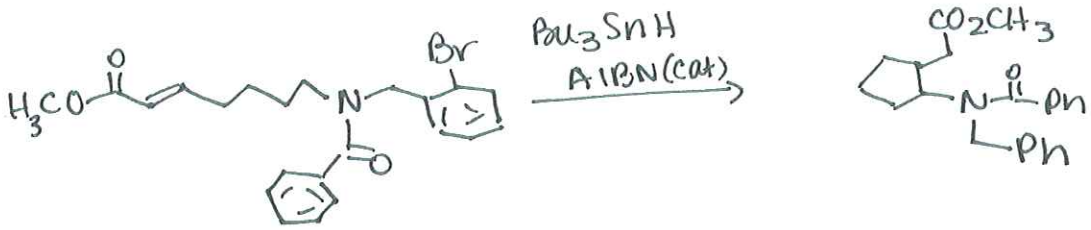


Break	Make
C3-C8	C8-C2
C10-Br	C1-C10

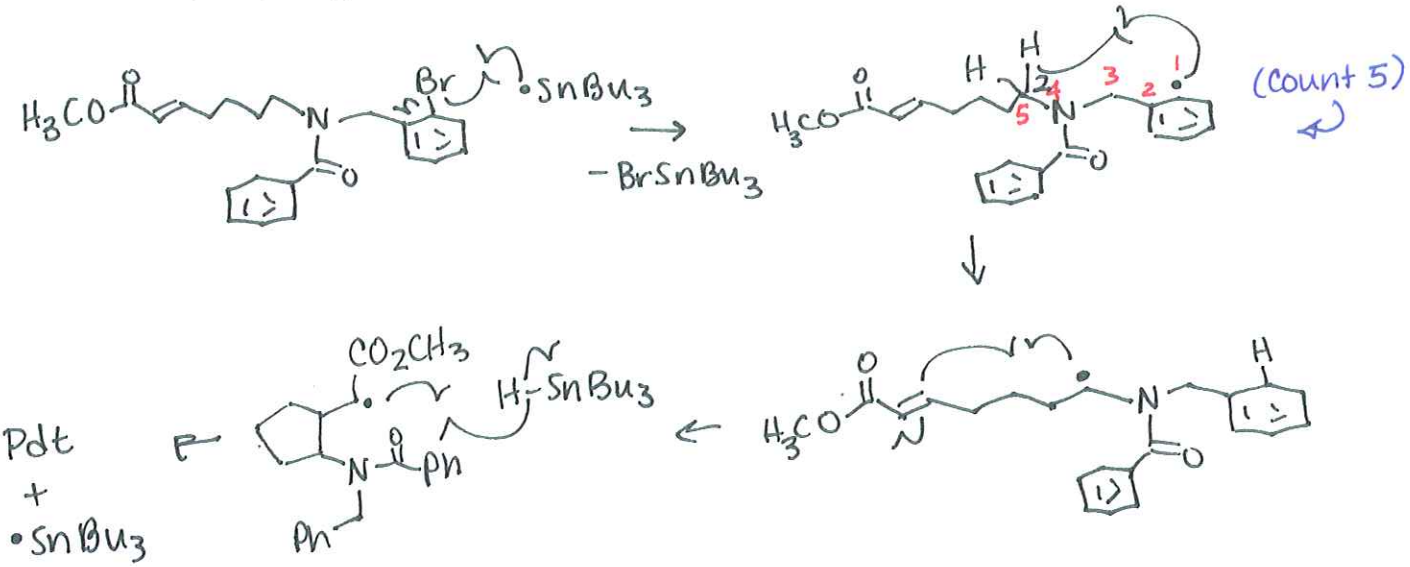
Note: 2 Steps to AIBN fragmentation.





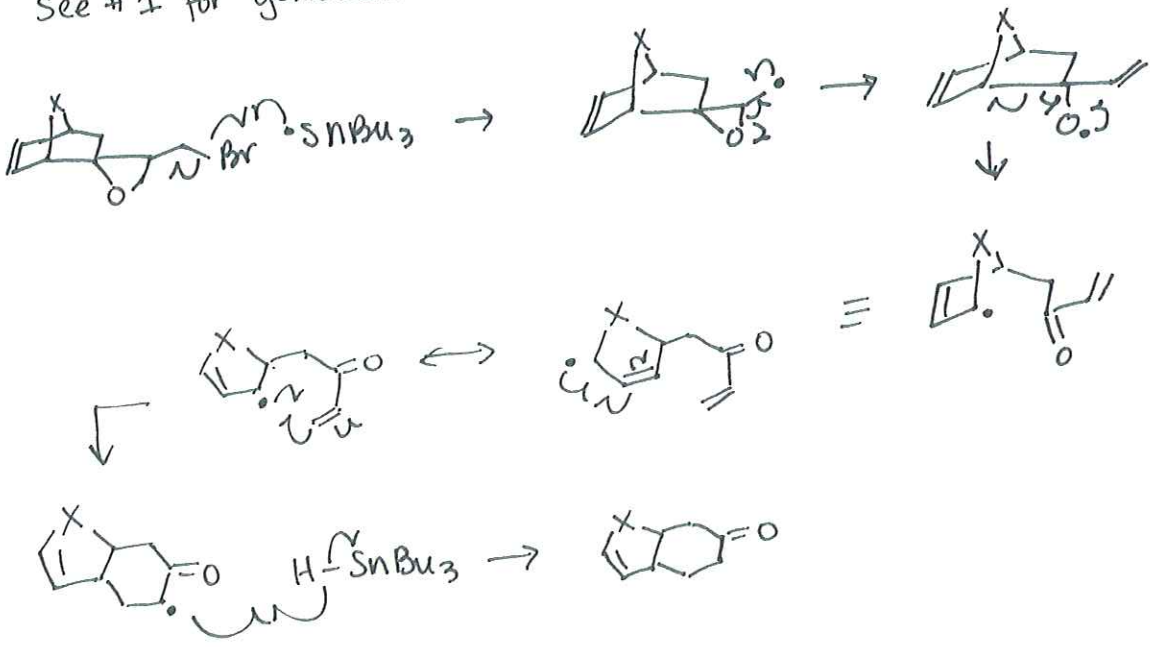
② 

See #1 for generation of $Bu_3Sn^{\bullet}$



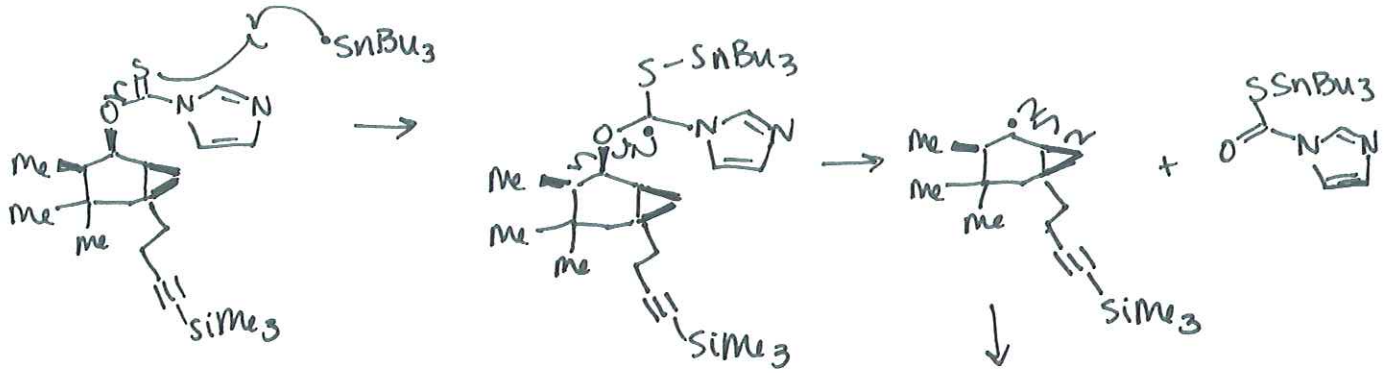
③ 

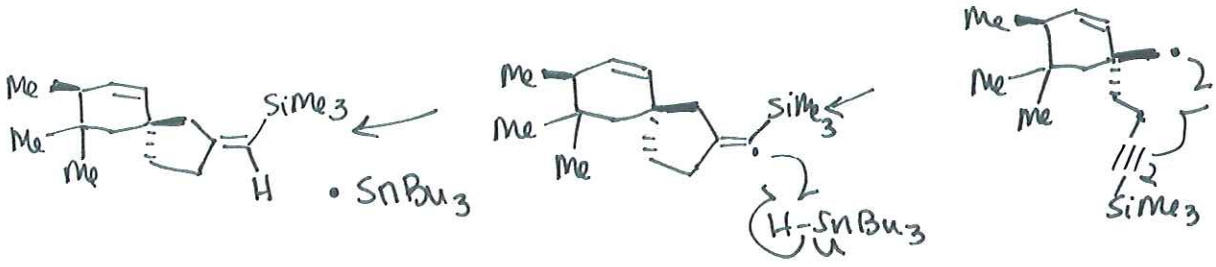
See #1 for generation of $Bu_3Sn^{\bullet}$

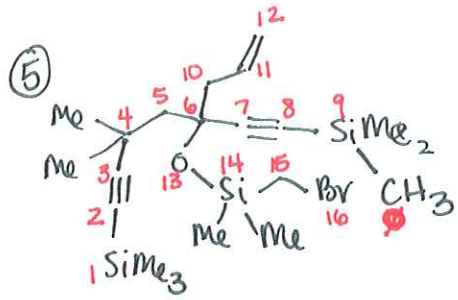


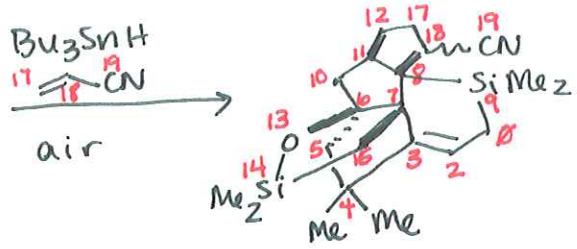
④

See # 1 for generation of $Bu_3Sn^{\bullet}$



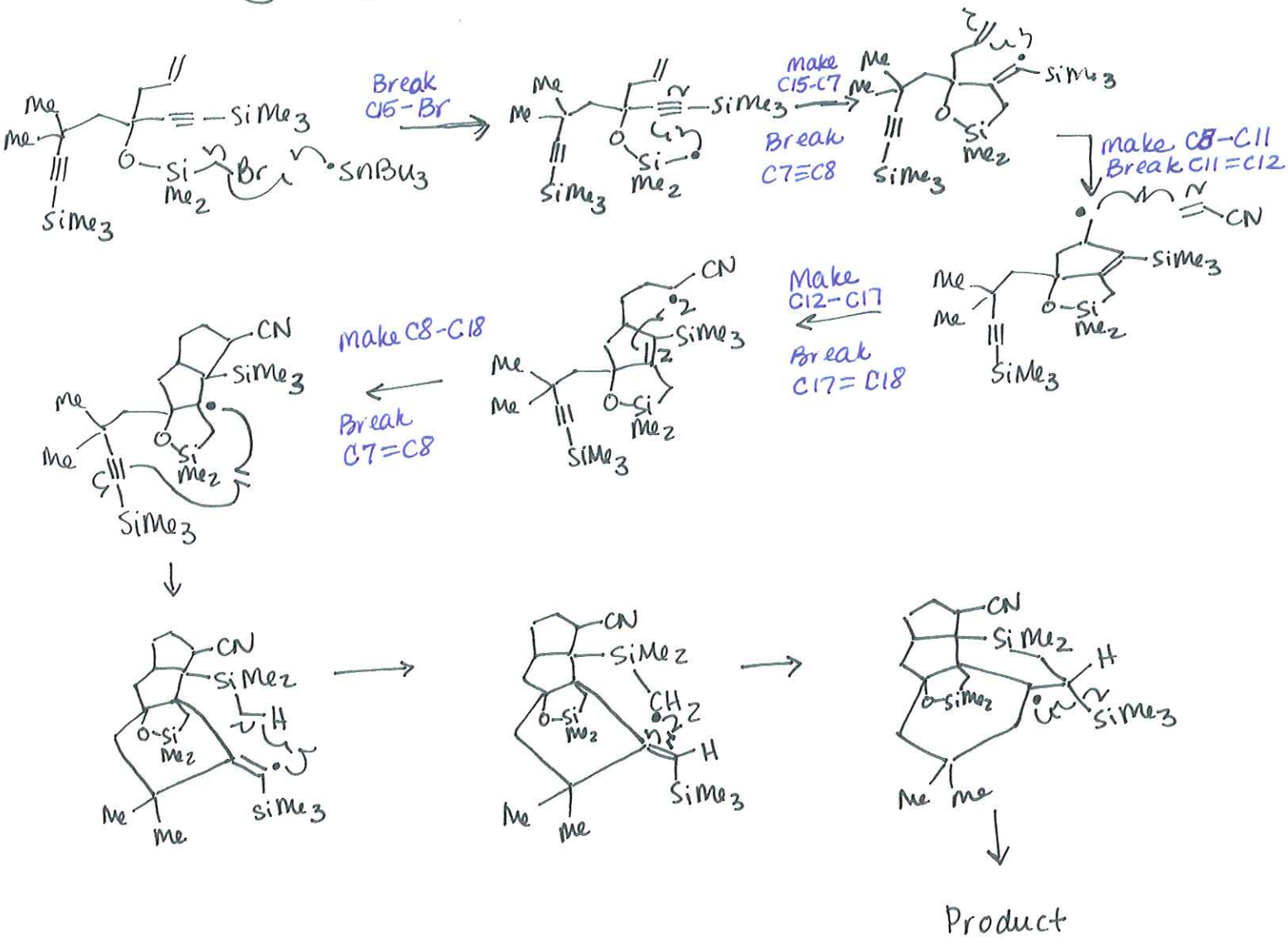






Break	Make
Si1–C2	C2–Cø
C2≡C3	C2=C3
C7≡C8	C3–C7
Cø–H	C7–C15
C15–Br(16)	C11–C18
C11=C12	C8–C18
C17=C18	C12–C7
	C8–C11

Numbering & tracking your atoms is THE KEY to this mechanism!



Product