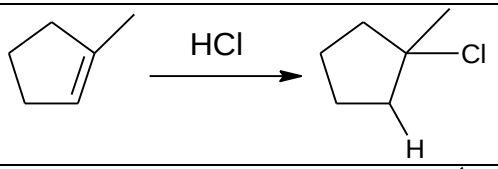
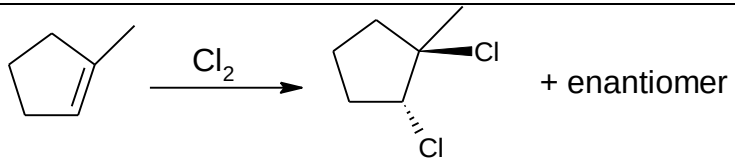
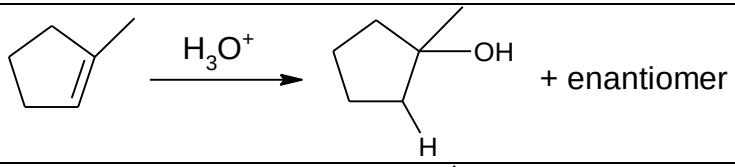
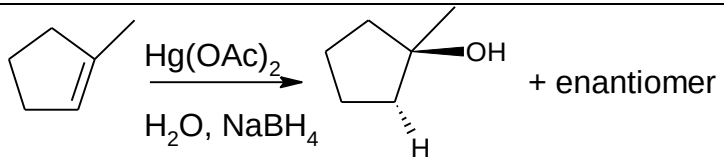
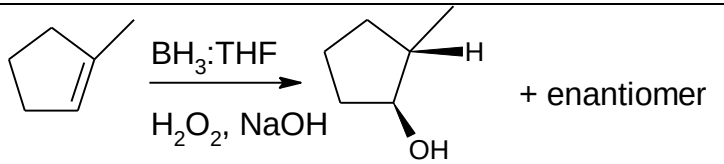
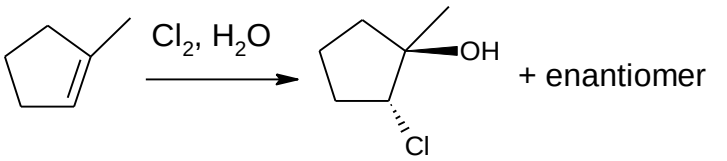
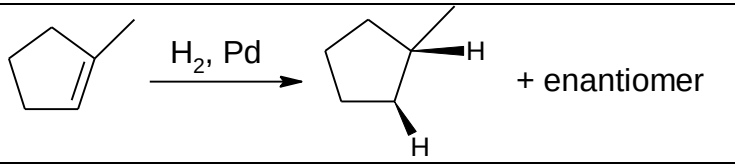
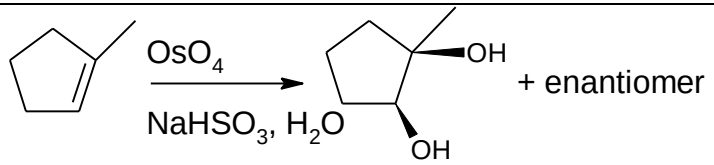
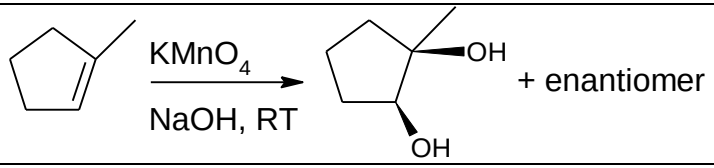
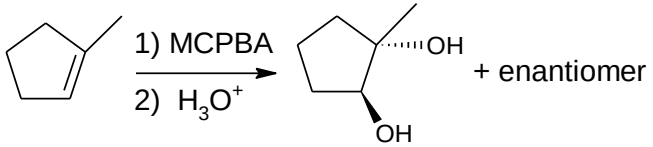
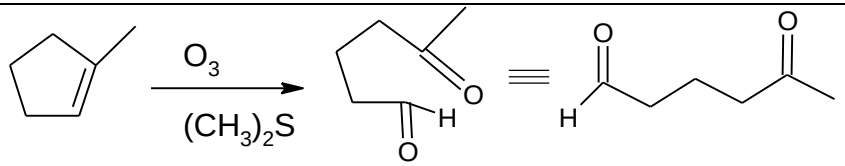
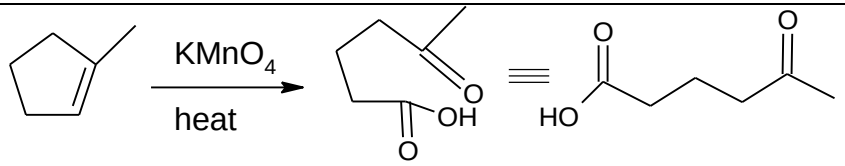
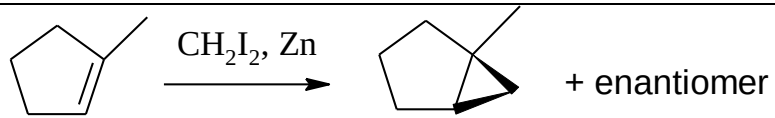
Alkene Reactions

Addition	Reagents	Reaction	Characteristics
Hydrohalogenation	HX (HCl, HBr)		Markovnikov's product Carbocation mechanism Rearrangement possible
Halogenation	X_2 (Cl_2, Br_2)		Anti addition
Hydration	H_3O^+		Markovnikov's product Carbocation mechanism Rearrangement possible
Oxymercuration	$Hg(OAc)_2$, $NaBH_4$		Markovnikov's product No rearrangement possible
Hydroboration	BH_3:THF, H_2O_2, NaOH		Anti-Markovnikov's product Syn addition
Halohydrin formation	X_2, H_2O (Cl_2, Br_2)		Anti addition
Hydrogenation (Reduction)	H_2, Pd (or Ni or Pt)		Syn addition

Oxidation	Reagents	Reaction	Characteristics
Diol Synthesis	OsO_4, $NaHSO_3$, H_2O		Syn addition
Diol Synthesis	$KMnO_4$ (cold)		Syn addition
Diol Synthesis	MCPBA followed by acid hydrolysis		Anti addition
Oxidative Cleavage: Ozonolysis	O_3		Unsubstituted alkene carbon gives aldehyde; substituted alkene gives ketone
Oxidative Cleavage	$KMnO_4$ (hot)		Unsubstituted alkene carbon gives acid; substituted alkene gives ketone; terminal alkene gives CO_2
Carbene Addition			
	CH_2I_2, Zn		Simmon-Smith reaction Gives cyclopropane ring
	$CHCl_3$, KOH