Alkene synthesis

Dehydrohalogenation
strong base

Dehalogenation of a vicinal dibromide
NaI, acetone

Reactions of alkenes

Electrophilic addition of HX
mark
alkyl halide
HX and polar solvent

Free radical addition of HBr
antimark
alkyl halide
HBr, ROOH, heat

Electrophilic H_20 addition
mark
alcohol
H^+, H_20

Oxymercuration/demercuration
mark
alcohol
$Hg(OAc)_2/H_20$, $NaBH_4$

Hydroboration/oxidation
antimark
alcohol
BH_3/THF, H_20_2/KOH

Hydrogenation
alkane
H_2 and Pt/C

Halogenation
vicinal dihalide
X_2

Hydrohalogenation
mark (OH)
halohydrin (alcohol moiety)
X_2, H_20

Syn dihydroxylation
dialcohol
OsO_4 or $KmnO_4$, H_20_2

Epoxidation/hydrolysis
anti dialcohol
MCPBA, H_2/H_2O

Ozonolysis
cleaved double bond
O_3, $(CH_3)_2S$

Cationic polymerization
BF_3 or ROOR

If you want	and you have	reagents	+/-	
alcohol	alkene	H^+, H_20	+	hydration
	alkene	$Hg(OAc)_2/H_20$, $NaBH_4$	+	oxymercuration
	alkene	BH_3/THF, H_20_2/KOH	-	hydroboration
	alkene	OsO_4, H_20_2		syn dihydroxylation
	alkene	MCPBA, H_2/H_2O		epoxidation/hydrolysis
alkyl halide	alkene	HX, polar solvent	+	electrophilic HX addition
	alkene	HBR, ROOH, Δ	-	free radical addition
vicinal dihalide	alkene	X_2		halogenation
halohydrin	alkene	X_2, H_20	+	halohydrogenation
alkane	alkene	H_2 and Pt/C		hydrogenation
alkene	alkyl halide	strong base		dehydrohalogenation
	vicinal dibromide	NaI, acetone		dehalogenation
	alcohol	strong acid (H_2SO_4)		dehydration of alcohol

Carbene reactions
acts like a radical
prone to forming 3-membered rings
I_2CH_2 + Zn or Cu

Expoxidation of alkenes
3-membered ring
uses MCPBA (metachloroperbenzoic acid)

Reactions of alkynes
Lindlar's catalyst
Pd + BaSO4 + quinine
turn alkyne into alkene

Acetylide ion
deprotonate -≡-H to get -≡: $^-$
only way to make a C-C bond
$NaNH_2$

Look at synthesis of alkynes!!