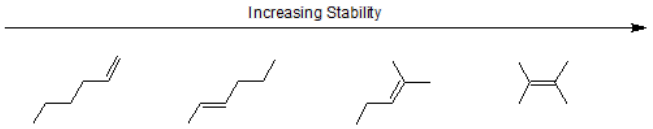
# 8.11: SOLUTIONS TO ADDITIONAL EXERCISES

## PHYSICAL PROPERTIES OF ALKENES

**8-1** When in the *cis* configuration, the methyl groups experience steric strain as they are in close proximity to each other. They avoid steric interactions when in the *trans* configuration as they are able to stay as far apart as possible.

**8-2**




**8-3** Alkyl groups are able to stabilize their neighboring carbon atoms by donating electron density, which allows for the delocalization of electron density and an increase in stability.

**8-4**

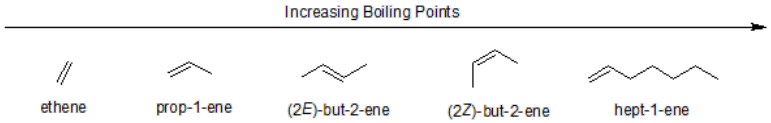
a) Disubstituted

b) Trisubstituted

c) Monosubstituted

d) Tetrasubstituted

**8-5**




## ELEMENTS OF UNSATURATION AND THE ORBITAL DESCRIPTION OF ALKENES

**8-6**

a) 4

b) 1

c) 2

d) 2

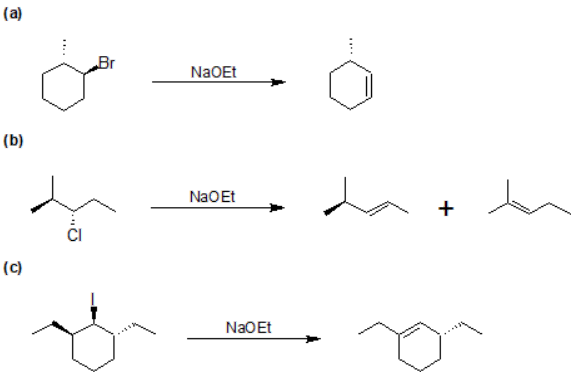
e) 5

f) 6

**8-7** One sigma and one pi bond together make a double bond.

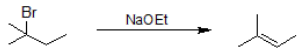
## ALKENE SYNTHESIS BY ELIMINATION OF ALKYL HALIDES

**8-8**

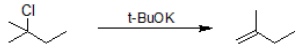



**8-9**

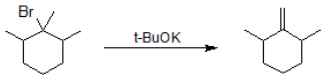
(a)



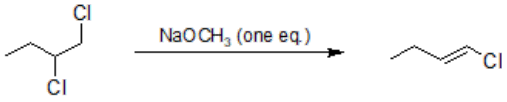

(b)




(c)



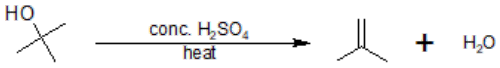

**8-10**



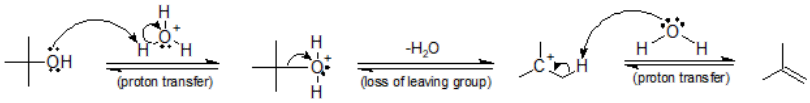

**8-11** (1*E*)-1-chlorobut-1-ene

## ALKENE SYNTHESIS BY DEHYDRATION OF ALCOHOLS

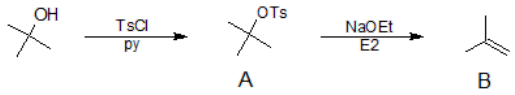
**8-12**




**8-13**




**8-14**




**8-15**