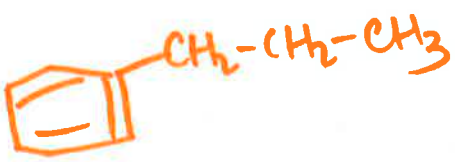
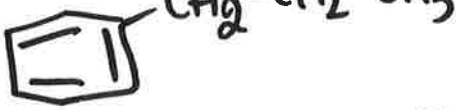
# Exercice 12

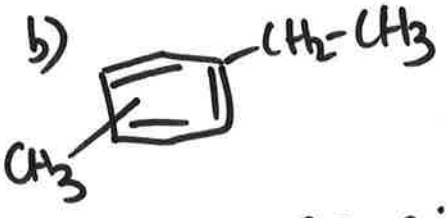
$C_9H_{12}$

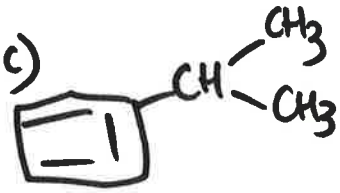



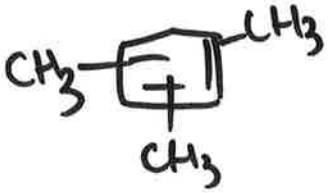

$$I = \frac{2\times 9 + 2 - 12}{2} = 4$$

Structures possible :

a) 


b) 


c) 


d) 


- 91, 65, 39 signature of benzyl
- 120-29 = 91 base peak
  lost of $-CH_2-CH_3$ (29)

Here it is a)

→ ok for a) and b)

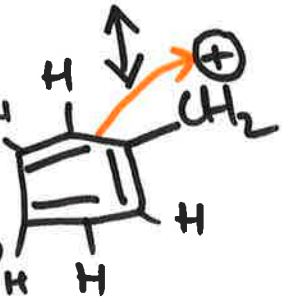
NMR easy to decide a) or b)

- 91 = 120 - 29 ← odd = radical
  ↑ odd cation
  lost of odd mass = lost of radical since no Nitrogen

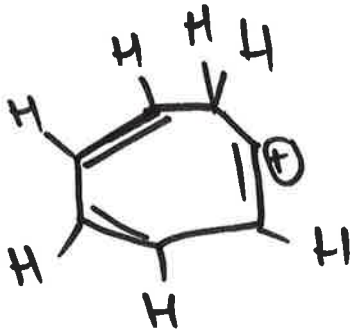

Homolytic cleavage
= benzylic cleavage


m/z = 91


aromatic
more stable



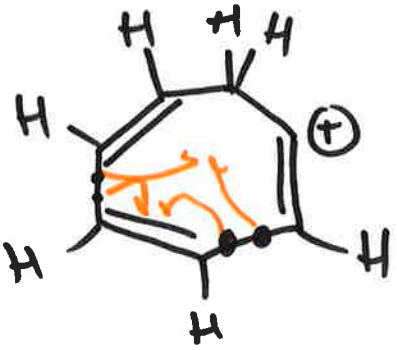

extension of cycle

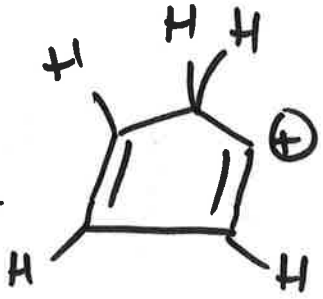



stabilised named Tropylium

– 65 = 91 − 26 ← even neutral (26 even mass meaning rearrangment)

odd = cation  odd = cation



→ H—≡—H + 

acetylen neutral not visible

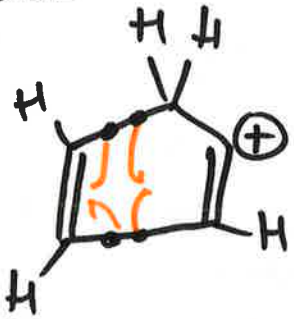
$C_5H_5$

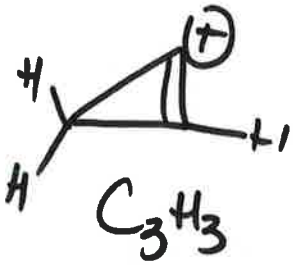
m/z = 65

– 39 = 65 − 26 ← even neutral rearrangement

cation odd

odd cation



→ H—≡—H + 

acetylen $C_2H_2$ (26) not charged not visible

$C_3H_3$

m/z = 39