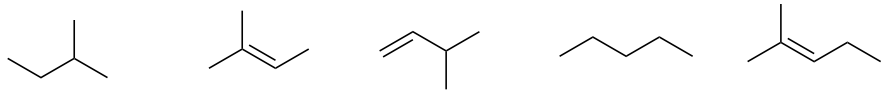
CHEM 8B Chapter 15 Homework – Mass Spectrometry (MS)

A compound's mass spectrum includes an "M^+ peak" that reveals the molecular weight of the compound!

1. **A hydrocarbon has 5 carbons and mass spectrum reveals an M^+ peak = 72.**
   a. What is its molecular formula? _____
   b. Which TWO structures fit this data?



2. **Propose the molecular formula** and **TWO structures** of molecules with **6 carbons, 1 oxygen,** and mass spectrum **M^+ peak = 102.**
   a. Molecular formula: _____
   b. Propose TWO structures that fit this data.

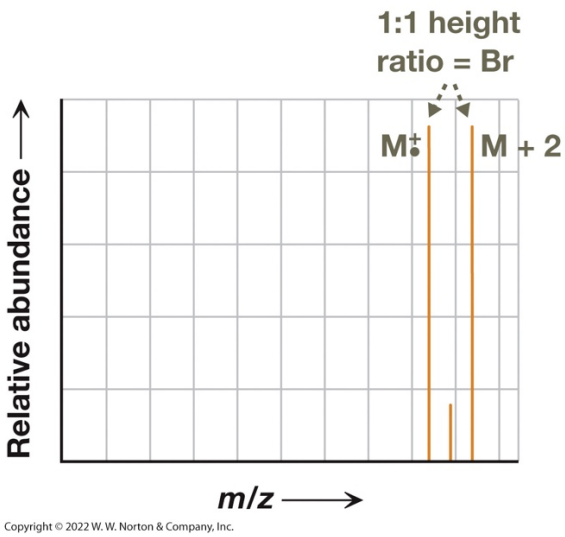
3. **An organic compound has 3 carbons and mass spectrum M^+ peak = 59**
   a. What is its molecular formula? _____
   b. Propose TWO structures that fit this data.

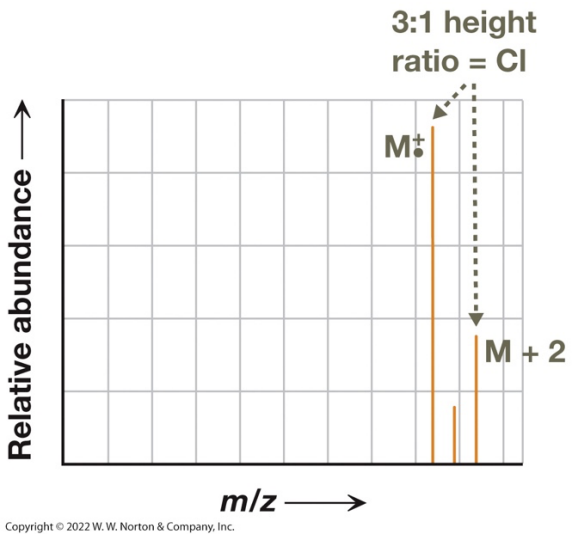
4. An organic compound has 6 carbons and mass spectrum M^+ peak = 99

a. What is its molecular formula? _____

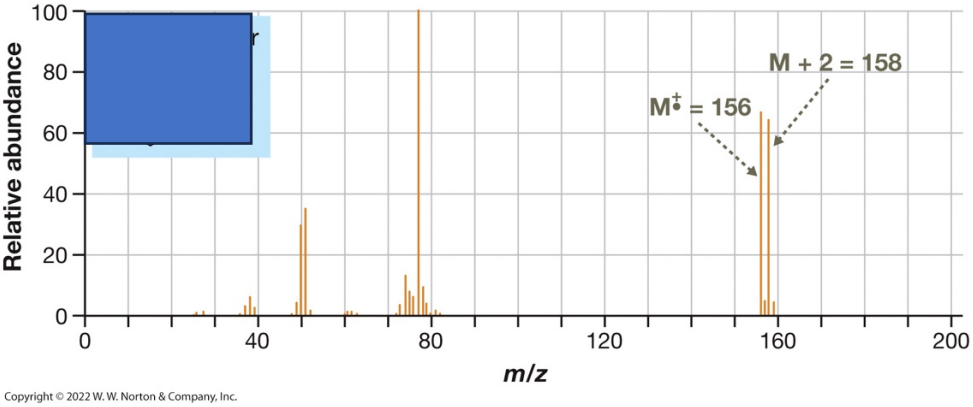
b. Propose TWO structures that fit this data.

5. Mass Spectrum Distinctive M+2 Peaks – Bromine and Chlorine Isotopes



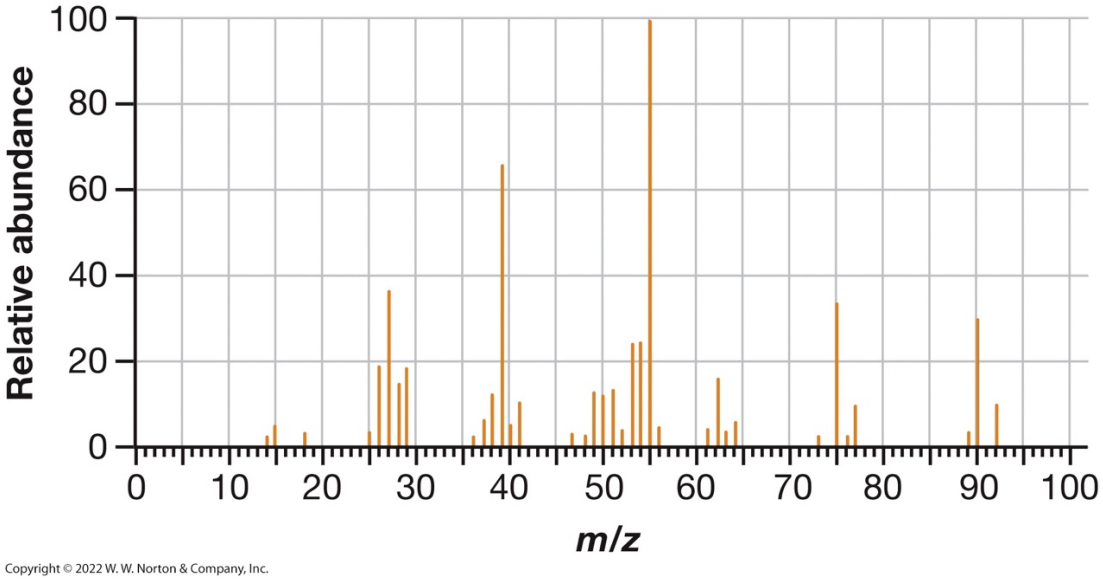


(a) **Propose a structure** for a molecule with **6 carbons** and the following mass spectrum.



Formula: _____

(b) **Propose the molecular formula** and **structure** for a molecule with **4 carbons** and the **mass spectrum** below. Note the peak intensities (height) of the **M^+ peak = 90** and **M+2 peak = 92.**



Molecular Formula _____

Propose TWO structures that fit this data