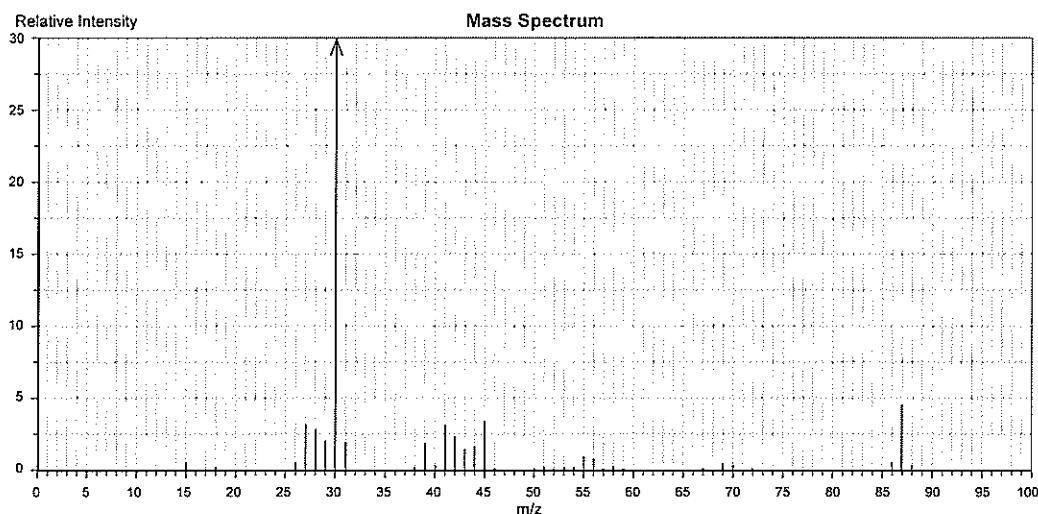


- b. If this amine (in question 3.a.) has only carbon, nitrogen and hydrogen what is its molecular formula?

2 N has a mass of 28, leaving a mass of 32. 1 C would leave 20 H, 2 C would leave 8 H and 3 C would be too many ($3 \times 12 = 36$). Therefore the formula is $C_2H_8N_2$.

4. Consider the following mass spectrum:



- a. What is the molecular ion? 87
- b. What is the base peak? 30
- c. Does the above compound contain nitrogen and why/why not?

Yes, because the molecular ion is odd.

- d. If the above organic compound has 5 carbons what is the molecular formula?
- $5 \times 12 = 60$, therefore there is 27 mass left over. 14 for one N leaves 13 which can only be hydrogens, so the formula is $C_5H_{13}N$.
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