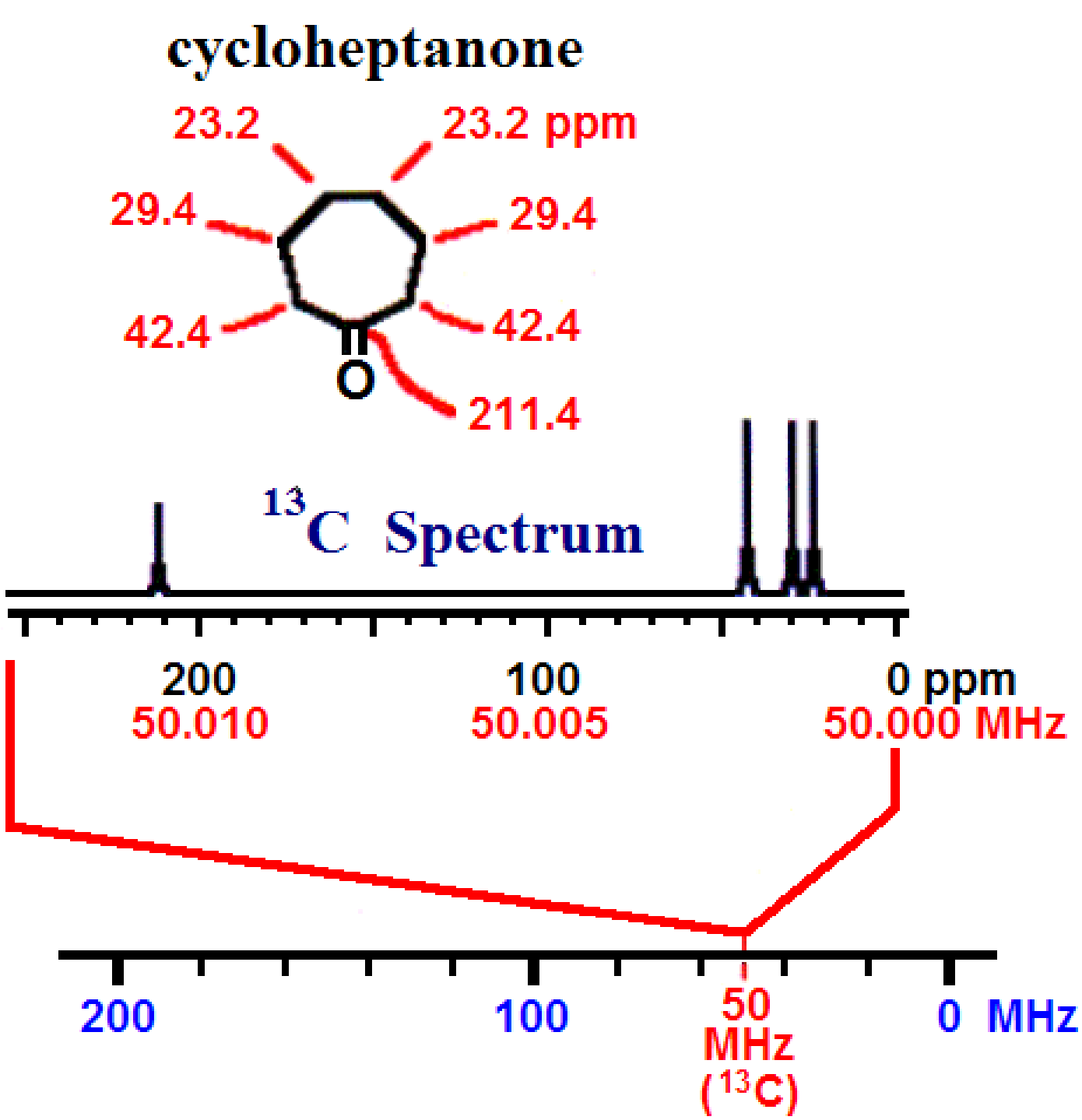

The resonant frequency for a particular nucleus at a specific position within a molecule is equal to the fundamental resonant frequency of that isotope (e.g., 50.000 MHz for ^{13}C) times a factor which is slightly greater than 1.0 due to the chemical shift:

$$\text{resonant frequency} = \nu_o (1.0 + \delta \times 10^{-6})$$

For example, a ^{13}C nucleus at the C-4 position of cycloheptanone (δ 23.2 ppm) resonates at a frequency of:

$$50.000 \text{ MHz} (1.0 + 23.2 \times 10^{-6}) = 50.000 (1.0000232) = 50{,}001{,}160 \text{ Hz}$$