

First NMR Assignment

1. Complete the interactive web assignment at
<http://www2.potsdam.edu/walkerma/NMRweb.htm>

Fill out the codes.

Problem 1: **I** _____ **II** _____ **III** _____

Problem 2: **I** _____ **II** _____ **III** _____

IV _____ **V** _____ **VI** _____

VII _____ **VIII** _____ **IX** _____

X _____

For online problem 2, you need to assign each peak on the spectrum to a particular type of hydrogen in the molecule (e.g., Cl-**CH**₂-CH₂-C=O) and its integration.

I Chem. shift _____ ppm Type of H _____ Int. ____H

 Chem. shift _____ ppm Type of H _____ Int. ____H

 Chem. shift _____ ppm Type of H _____ Int. ____H

II Chem. shift _____ ppm Type of H _____ Int. ____H

 Chem. shift _____ ppm Type of H _____ Int. ____H

 Chem. shift _____ ppm Type of H _____ Int. ____H

III Chem. shift _____ ppm Type of H _____ Int. ____H

 Chem. shift _____ ppm Type of H _____ Int. ____H

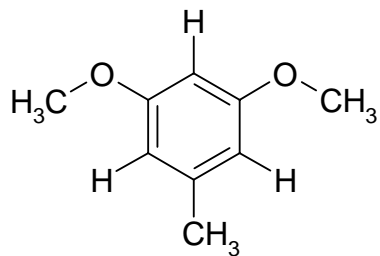
 Chem. shift _____ ppm Type of H _____ Int. ____H

IV Chem. shift _____ ppm Type of H _____ Int. ____H

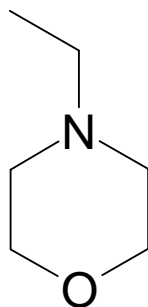
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
V	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
VI	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
VII	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
VIII	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
IX	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
X	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H
	Chem. shift _____ppm	Type of H _____	Int. ____H

2. For each of the structures below, label each set of chemically equivalent protons, using *a* for the set that will be the farthest upfield in the ^1H NMR spectrum, *b* for the next, etc.

(a)



(b)



3. Work out the structure of compound X from its ^1H and ^{13}C NMR spectra. Explain your reasoning below.