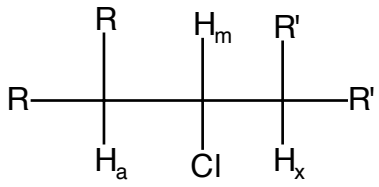
Problem 72, Chemistry 301X - 2006

Now consider a more complex "AMX" system. How many lines for H_a? How many lines for H_x? OK that's easy. But how many lines for H_m? That's not so easy.

Hint: do it "one J at a time" - figure out the effects of MA coupling, than add the effects of MX coupling.



Get your answer checked!

No use the supplied graph paper to see whether it makes a difference in which order you do the "tree" diagram.

Let J_{ma} = 2 Hz and J_{mx} = 4Hz.

Does it make a difference? (it had better not!)

What happens if J_{ma} and J_{mx} are very, very close?

Work out the "tree" diagram for an AMX_2 system.

Work out a tree diagram for an AMX_3 system.

How about an A_2MX_2 system?

OK now you know a lot about J.