

HW #2 SUPPLEMENTAL Q's

1) $\nu = \gamma B$

$400 \text{ MHz} = 42.58 \frac{\text{MHz}}{\text{T}} B$

$B = 9.39 \text{ T}$

2) DIFFERENCE BETWEEN PEAKS : $(1.25 - 1) \text{ ppm} = 0.25 \text{ ppm}$

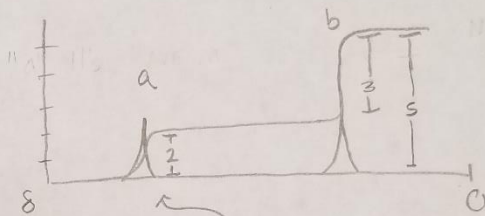
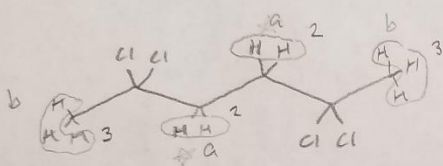
$0.25 = \frac{x}{300 \text{ MHz}}$

$x = 75 \text{ Hz}$ For 300 MHz NMR

$0.25 = \frac{y}{900 \text{ MHz}}$

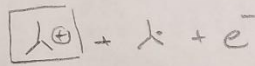
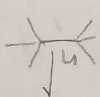
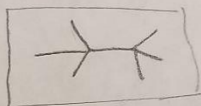
$y = 225 \text{ Hz}$ For 900 MHz NMR

3)

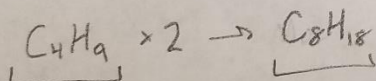


PEAK FOR "a" JUST NEEDS TO BE DOWNFIELD FROM "b" PEAK

4)



↳ TERTIARY CARBOCATION = MOST STABLE



EMPIRICAL

MOLECULAR
w/ $M_z = 114$

1st BONUS Q

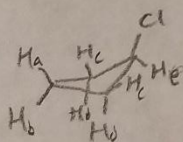
5) $\nu = \gamma B$

$500 \text{ MHz} = 42.58 \frac{\text{MHz}}{\text{T}} B$

$B = 11.7 \text{ T}$

2nd BONUS Q

(e)



THERE ARE 5 UNIQUE H's