MAD ORG. CHEM. MIN. #8

LAST NAME_____ FIRST NAME_____

SS#_____ CIRCLE CLASS TIME: 10AM 5:30PM

58-60 ↑

* all are same MW – NOT a factor

1. Place the molecules below in order of increasing boiling point (1=lowest, 6 = highest).

MW 59 $CH_3CH_2-NH-CH_3$

4 – polar – NH forms fewer H-bonds than NH_2

bp = 37°C

MW 58 $CH_3CH_2CH_2CH_3$

2 nonpolar

bp = 0°C

MW 60 $CH_3CH_2CH_2OH$

6 – polar – * Oxygen forms stronger H-bonds than nitrogen (O is more EN than N, so stronger δ+ on its H)

bp = 97°C

MW 60 $CH_3CH_2-O-CH_3$

3 – slightly polar – no H-bonds

bp = 8°C

MW 59 $CH_3CH_2CH_2NH_2$

5 – polar – N forms weaker H bonds than O – forms more H-bonds per molecule than NH

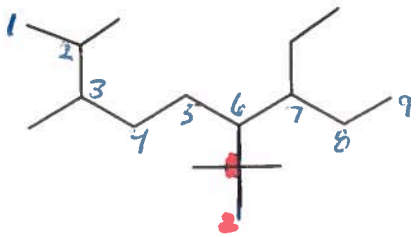
bp = 48°C

MW 58 CH_3CHCH_3 (CH_3 branch)

1 nonpolar and branched

bp = −11.7°C

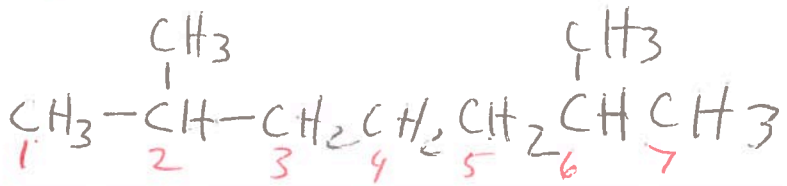
2. Give the IUPAC name for the compound below.



or 7-ethyl-2,3-dimethyl-6-(dimethylethyl) nonane

6-t-butyl-7-ethyl-2,3-dimethylnonane

b. $(CH_3)_2CH(CH_2)_3CH(CH_3)_2$



2,6-dimethylheptane