# Exercise #4 : IUPAC Naming Exercises For Branched Alkanes

 **Organic Chem I Alfred State College (see pp 73-78 of text)**

 **ANSWERS**



C

**Name us:** C-C-C-C-C-C | 1

 1 C-C-C-C

 **4-ethyl-3,4-dimethylheptane**  **4-ethyl-2,3-dimethylheptane**



1

CH3C(CH3)2 C(CH3)2(CH2)4 CH3



 **1**

**2,2,3,3-tetramethyloctane** **3,3,5-trimethylheptane**



*If equal first locants*

*pick one first on alphabet*

*Lower second locant favors left side as C1*



 1

1

**3-ethyl-4-methylhexane** not

~~4-ethyl-3-methylhexane~~

 **4-ethyl-3,3-dimethylhexane**  not

 ~~3-ethyl-4,4-dimethylhexane~~

no



1

Yes



*If different equal length parents*

 *possible, pick one that*

 *maximizes substituent count*

 **1**

**4-(1-methylethyl)-2,3-dimethylheptane**

 **3-ethyl-2-methylpentane**  not ~~3-(1-methylethyl)pentane~~ *the straightest chain is not always longest*

**Draw us :**



**2,2-Dimethylpropane**



**4-Ethyl-3,3-dimethylhexane**

**3,4,5,6-tetramethylundecane**





**2,2-Dimethyl-3-(1-methylethyl)octane**

**What’s wrong with my name, wise guy?**



**1-methylpropane =>** can’t start with 1-alkyl

*Compound is really butane.*

2 not 4



**4,4-dimethylpentane**

*Locant number should be 2,2, not 4,4*

**2-ethylhexane**



*Mis-identified longest parent chain.*

*Really 3-methylheptane*

**2-methyl-4-ethylheptane**

Reverse order ..substituents listed in alphabetic order…really 4-ethyl-2-methylheptane

**4-(1,1-dimethylpropyl)heptane**



*Parent chain has less substituents than alternative*

*Should be: 3,3-dimethyl-4-propylheptane*