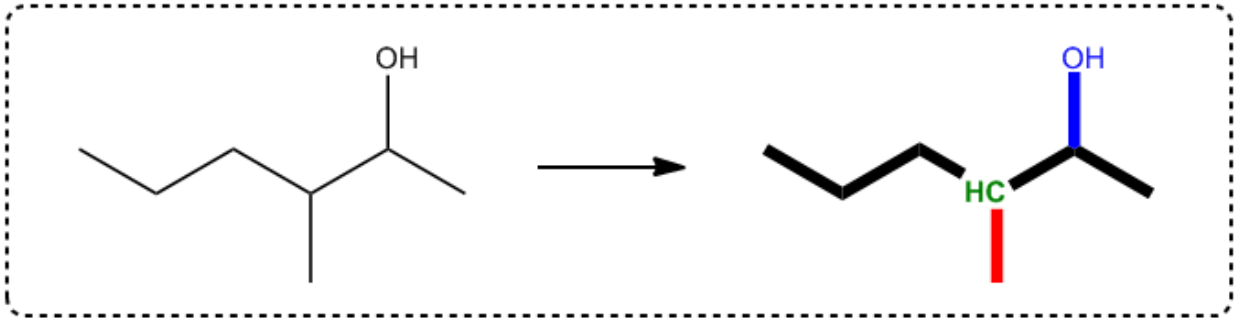
CONCEPT: ALKANE NOMENCLATURE

- Before 1919, chemists literally had to memorize thousands of random (common) chemical names.
- IUPAC naming provides a systematic method to give every chemical structure a unique, unambiguous chemical name .



_____-_____-_____(_____)

Locations Substituents Root Modifier

CONCEPT: ALKANE PREFIXES

We will use the following set of rules to systemically name alkanes:

Rule #1. Number the **longest carbon chain** and assign a root name accordingly.

- If there is a tie between longest chains, choose the chain that gives _____ substituents.

Alkane Prefixes

1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

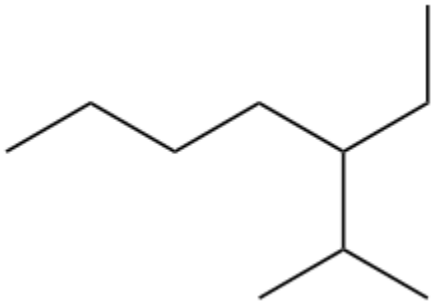
CONCEPT: ALKANE NOMENCLATURE

Rule #2: **Decide the direction** of the root chain starting from the closest substituent

- If there is a tie between substituents, compare the _____ substituents
- If there is STILL a tie, determine direction using _____.

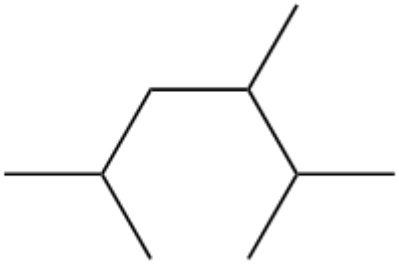
EXAMPLE: Name the longest carbon chain and determine the direction of the root chain

a.



EXAMPLE: Name the longest carbon chain and determine the direction of the root chain

b.



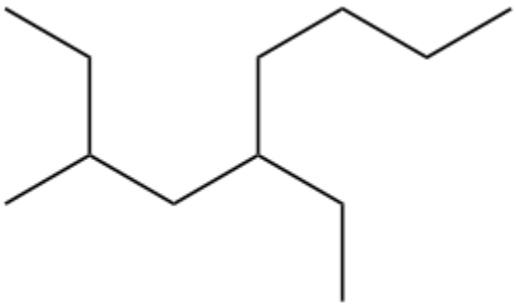
CONCEPT: ALKANE NOMENCLATURE

Rule #3: Designate numerical **locations** of substituents

- When one or more substituents are identical, use the prefixes _____ (2), _____ (3), _____ (4).
- Represent substituents using **–yl** suffix on alkane groups. (alkanes become alkyls)

EXAMPLE: Name the **root** chain, determine the **direction** of the root chain and then **identify & locate** all substituents

c.



Rule #4: Name substituents in alphabetical order (prefixes don't count toward this!)

Rule #5: Use _____ to separate numbers from numbers, _____ to separate letters from numbers.

EXAMPLE: Provide the IUPAC name for the following alkane:

d.