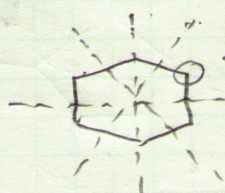
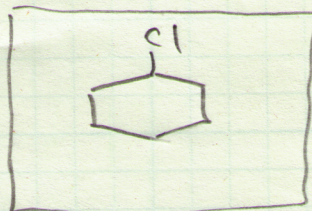
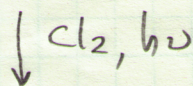


use (planes of symmetry) to identify chemical equivalent carbon centers. If carbons are chemically equivalent their hydrogens typically (but not always) are too.

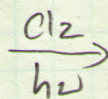
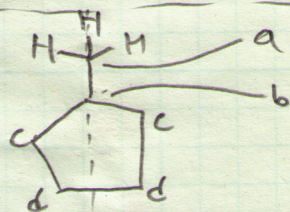


→ 4 planes of symmetry. The carbon within this sector is equivalent to all other C's in structure

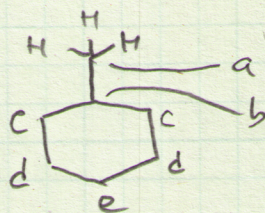
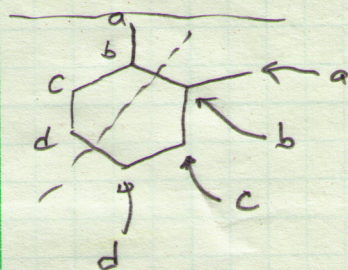


mono chlorinated product?

one



4 monochlorinated products



5 monohalogenated products

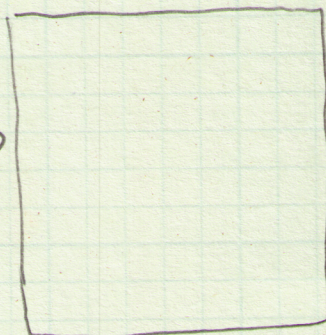
a-6H (1°)

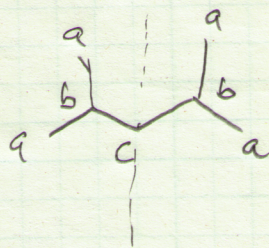
b-2H (3°)

c-4H (2°)

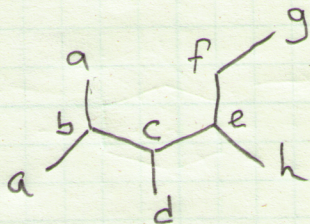
d-4H (2°)

} you try



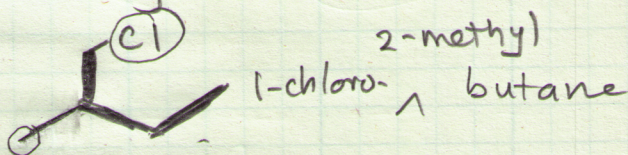


3-monohalogenated products
 $(a-12H)_{1^{\circ}} (b-2H)_{3^{\circ}} (c-2H)_{2^{\circ}}$



8-monohalogenated products
 $(a-6H)_{1^{\circ}} (b-1H)_{3^{\circ}} (c-1H)_{3^{\circ}} (d-3H)_{1^{\circ}} (e-1H)_{3^{\circ}} (f-2H)_{2^{\circ}}$
 $(g-3H)_{1^{\circ}} (h-3H)_{1^{\circ}}$

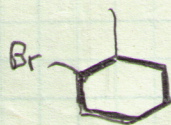
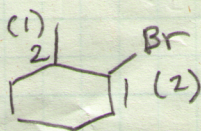
Naming alkane monohalogenated compounds



4-(chloromethyl)heptane

↳ complex/compound substit name surrounded by parentheses!

Naming Cycloalkanes



$\Rightarrow$ these are both (!)

1-bromo-2-methylcyclohexane

1-methyl-2-bromo

or

1-bromo-2-methyl

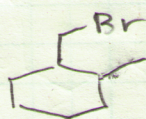
BOTH USE

1,2, break tie

w/ bromo alphabetically

↳ highlight ring only.

anything attached is a substituent



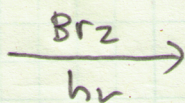
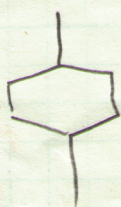
cyclohexane ✓

Substituents
(bromomethyl)

methyl

'b' before 'm' $\therefore$ 1-(bromomethyl)

2-methyl



- a) Draw each of the unique monobrominated compounds derived from this reaction.

These are constitutional isomers *

* isomers

Same Molecular Formula

* Constitutional isomers

Same Mol. Form.

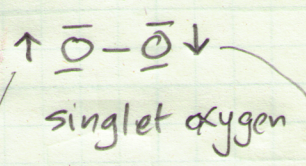
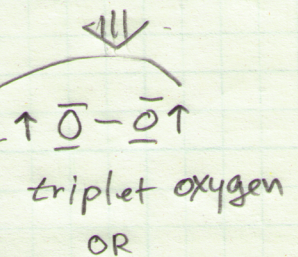
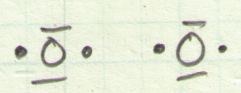
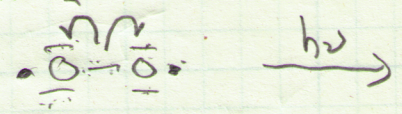
BUT named differently

- b) Under each unique compound you drew above, write their relative abundance given that a Br• (bromine radical) can remove the follow H• types at the rel. rate listed.

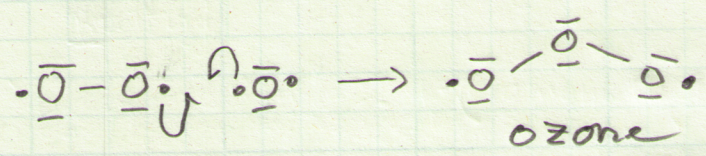
	1° H	2° H	3° H
rel rate of abstraction by Br•	1 s ⁻¹	80 s ⁻¹	2000 s ⁻¹

- c) Circle the most abundant compound above

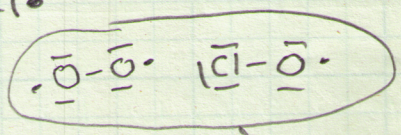
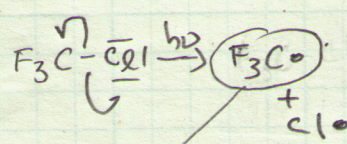
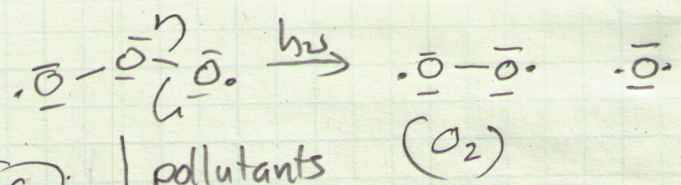
an O_2 Lewis structure



e^-
Spin up
Spin up
Spin down



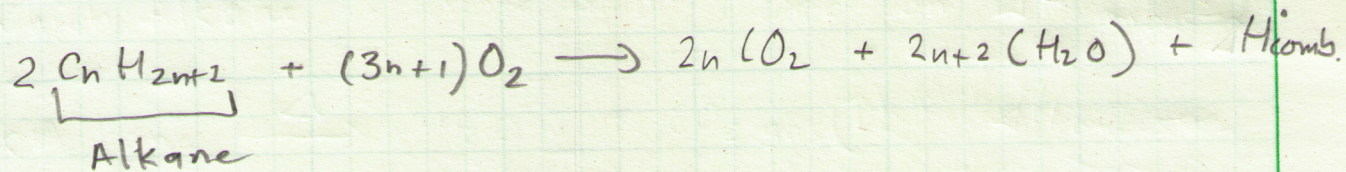
protects atmosphere
from dangerous uv
light (by)



why is this
less reactive radical
than $Cl \cdot$?

pollutant breaks down
 O_3 (ozone).

Heat of combustion of Alkanes.

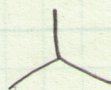


Compare
mole

(1) 

n-butane

mole
(1)



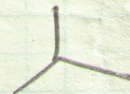
i-butane

+ $(6.5 O_2)$

- 687 kcal mol⁻¹

- 685 kcal mol⁻¹

4 CO₂ + 5 H₂O

which is more unstable  or  ?