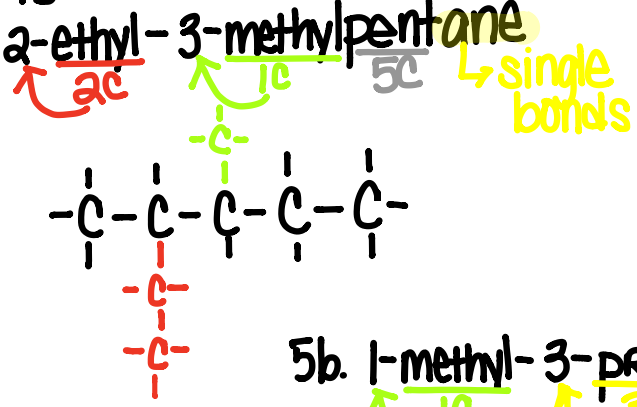
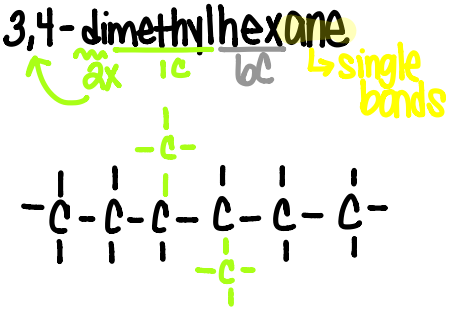
HOMEWORK:

Pg. 645:

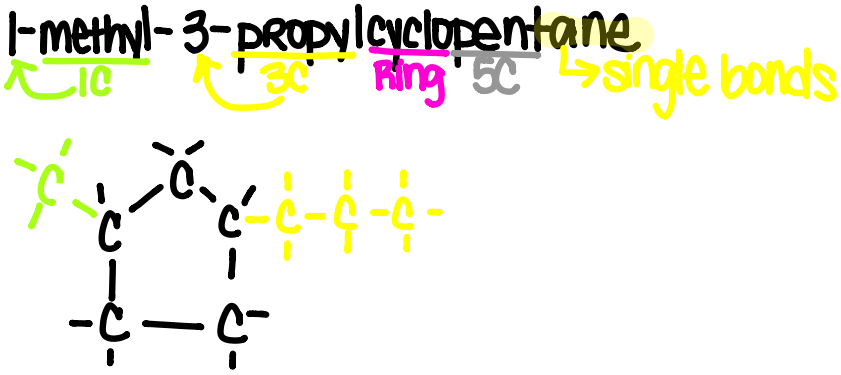
5a. 2-ethyl-3-methylpentane



3,4-dimethylhexane

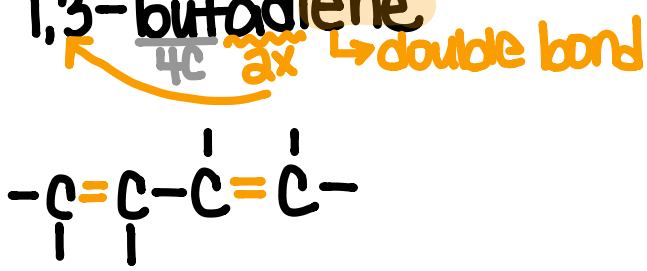


5b. 1-methyl-3-propylcyclopentane

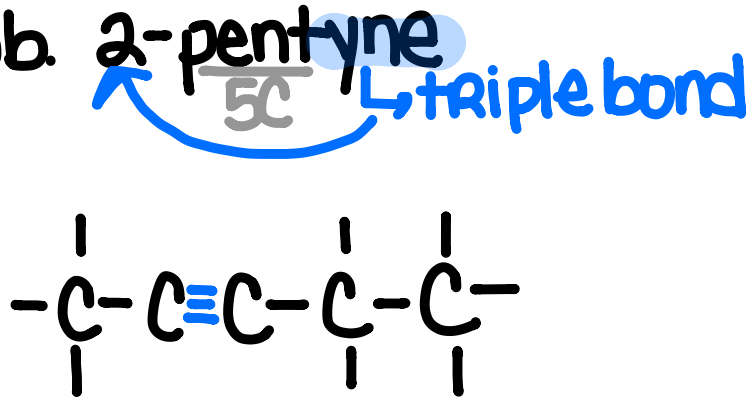


Pg. 655:

5a. 1,3-butadiene



5b. 2-pentyne



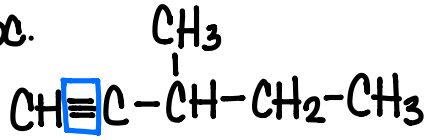
Pg. 657:

13b.

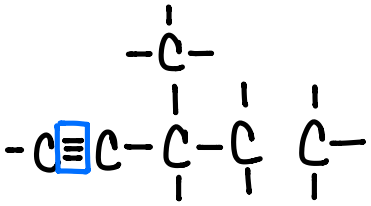
OR

alkene

13c.

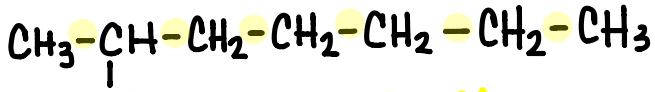


OR



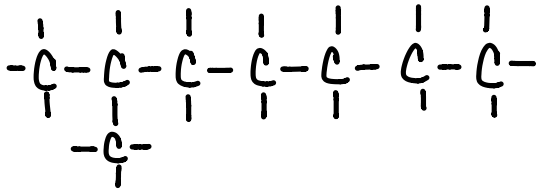
alkyne

13d.

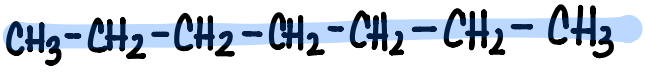


alkane

OR

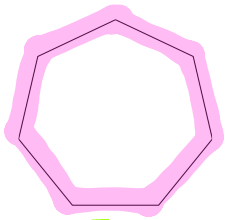


34a.



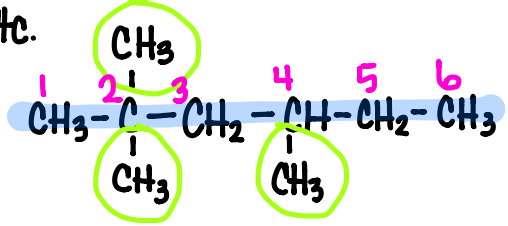
heptane

34b.



cycloheptane

34c.

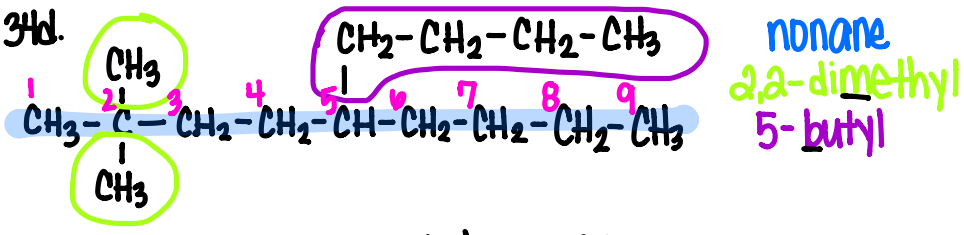


hexane

2,2,4-trimethyl

∴ 2,2,4-trimethylhexane

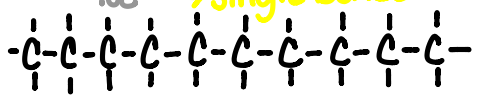
34d.



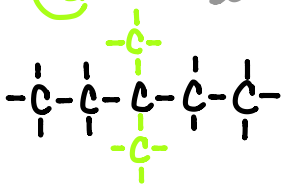
nonane
2,2-dimethyl
5-butyl

∴ 5-butyl-2,2-dimethylnonane

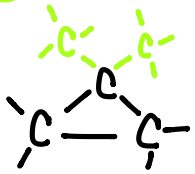
35a. decane
10C → single bonds



35b. 3,3-diethylpentane
2x 1C | 5C → single bonds

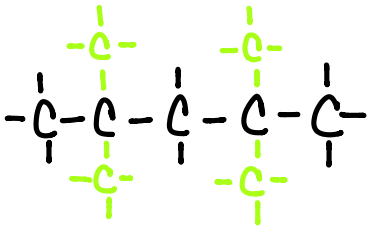


36a. 1,1-dimethylcyclopropane
2x 1C | Ring | 3C → single bonds



36b. 2,2,4,4-tetramethylpentane

4x 1C 5C ↳ single bonds



37a. $CH_3-CH_2-CH(CH_3)_2$

1-methylpropane?

↳ no... butane

37b. $CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-CH(CH_2CH_3)_2$

nonane?

↳ yes!

37c. $CH_3-CH_2-CH_2-CH(CH_3)-CH_2-CH_3$

4-methylhexane?

↳ no... 3-methylhexane

37d. $CH_3-CH_2-CH(CH_2-CH_3)-CH_2-CH(CH_3)-CH_3$

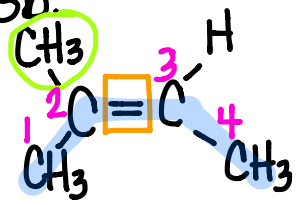
4-ethyl-2-methylhexane?

↳ yes!

38a. $CH_2=CH-CH_2-CH_2-CH_3$

∴ 1-pentene

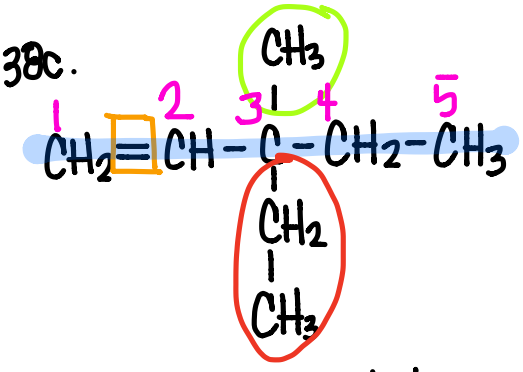
38b.



2-butene
2-methyl

∴ 2-methyl-2-butene

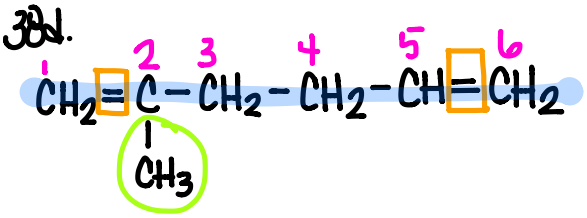
38c.



1-pentene
3-methyl
3-ethyl

∴ 3-ethyl-3-methyl-1-pentene

38d.



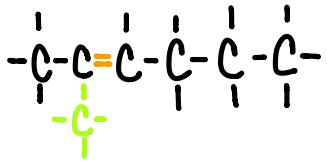
1,5-hexadiene
2-methyl

∴ 2-methyl-1,5-hexadiene

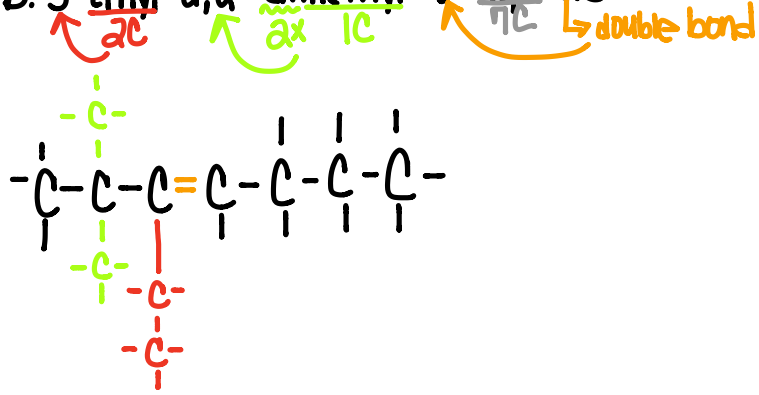
39a. 2-methyl-2-hexene

IC

6C → double bond

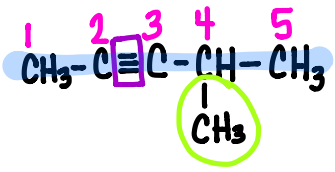


39b. 3-ethyl-2,2-dimethyl-3-heptene



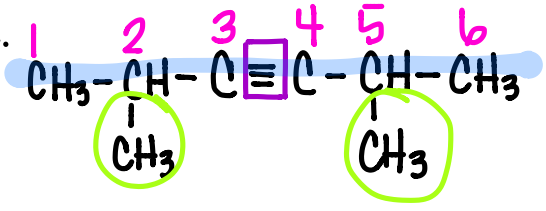
41a. 

∴ 1-propyne

41b. 

2-pentyne
4-methyl

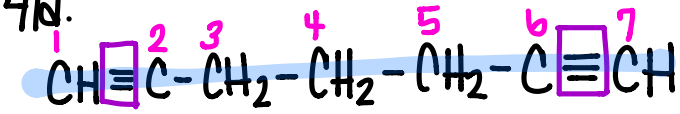
∴ 4-methyl-2-pentyne

41c. 

3-hexyne
2,5-dimethyl

∴ 2,5-dimethyl-3-hexyne

41d.

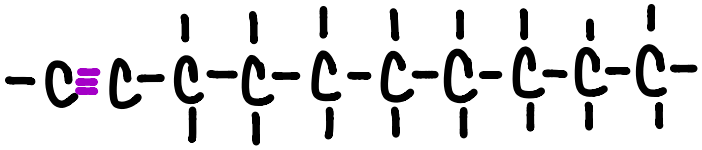


∴ 1,6-heptadiyne

420. 1-decyne

10C

↳triple bond

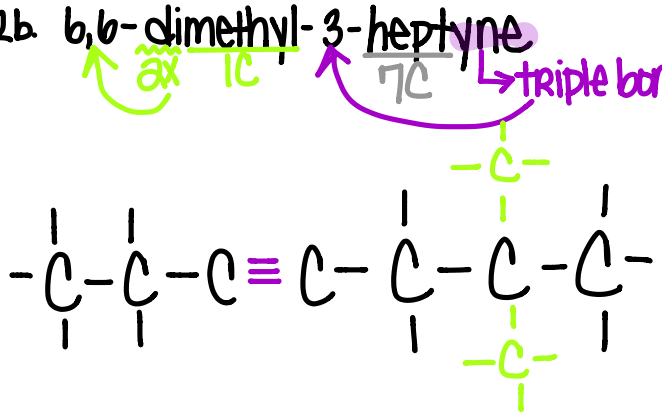


426. 6,6-dimethyl-3-heptyne

2x 1C

7C

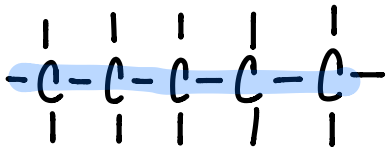
↳triple bond



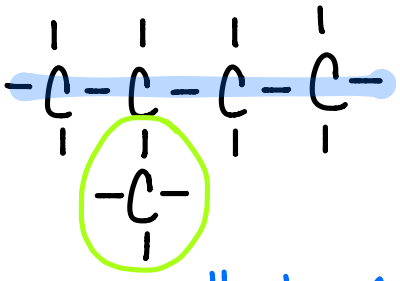
HOMEWORK:

Pg. 645:

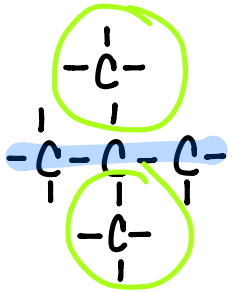
2 & 3.



pentane



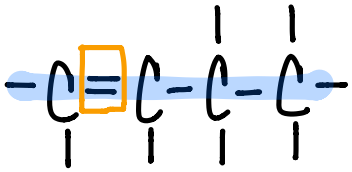
2-methylbutane



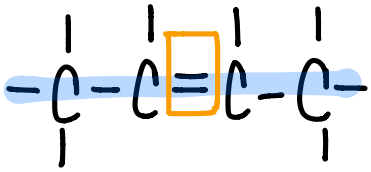
2,2-dimethylpropane

Pg. 655:

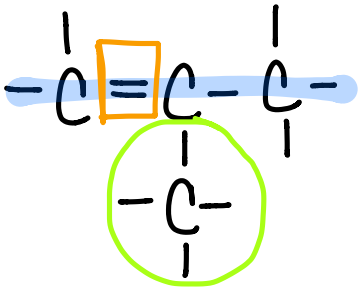
2 & 3.



1-butene



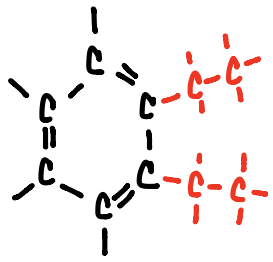
2-butene



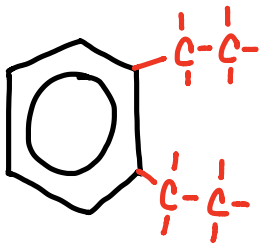
2-methyl-1-propene

5. 1,2-diethylbenzene

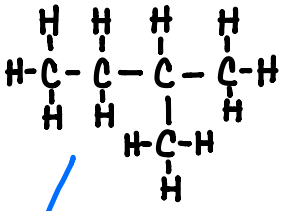
2x 2c 3=;3-

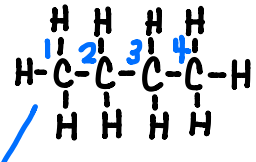


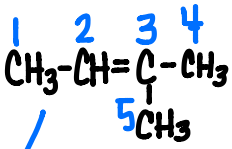
OR

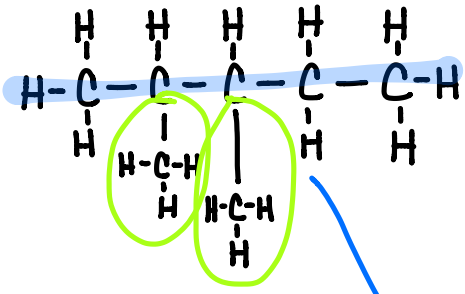
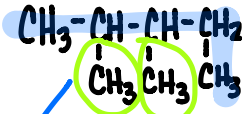


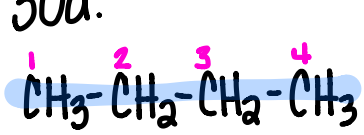
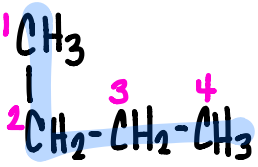
Pg. 657:

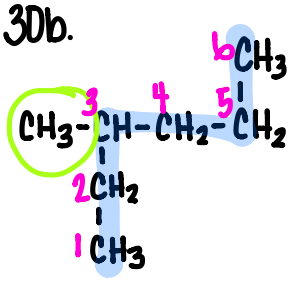
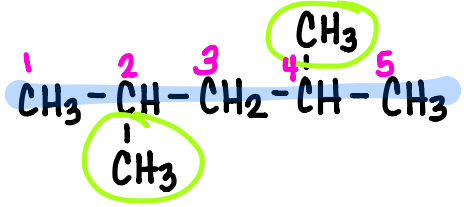
29a. C_5H_{12} and  — same

29b.  and  — different

29c. C_6H_{10} and  — different

29d.  and  — same

30a.  and  — same

30b.  and 

C_7H_{16} — 3-methylhexane

C_7H_{16} — 2,4-dimethylpentane

structural isomers

30c.

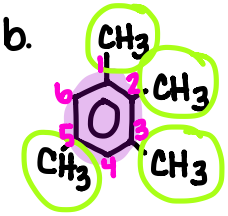
$C_3H_6O_2$ $C_3H_6O_2$

Structural isomers

43a.

benzene

43b.



benzene

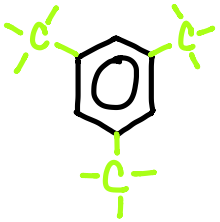
1,2,3,5-tetramethyl

∴ 1,2,3,5-tetramethylbenzene

44a.

1,3,5-trimethylbenzene

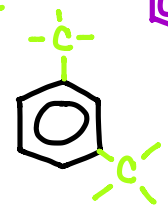
3x 1c



44b.

1,3-dimethylbenzene

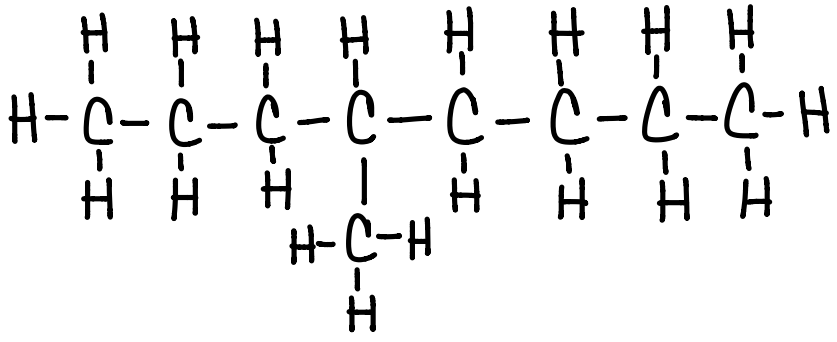
2x 1c



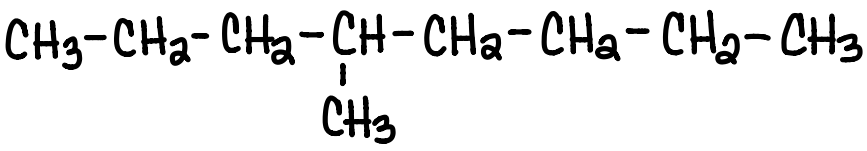
50a.

4-methyloctane

1c 8c → single bonds



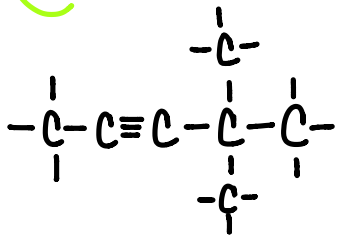
50b.



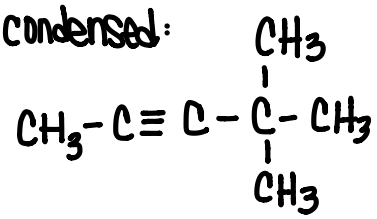
52a.

4,4-dimethyl-2-pentyne

2x 1C — 5C — ↳ triple bond

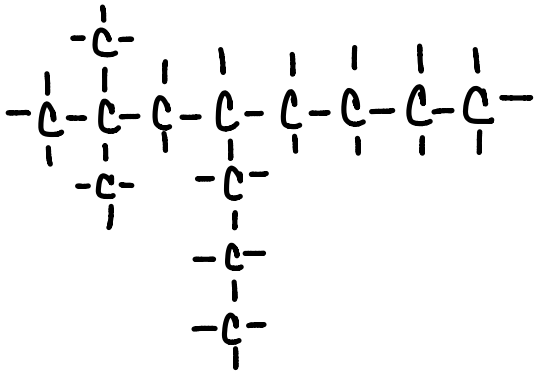


condensed:

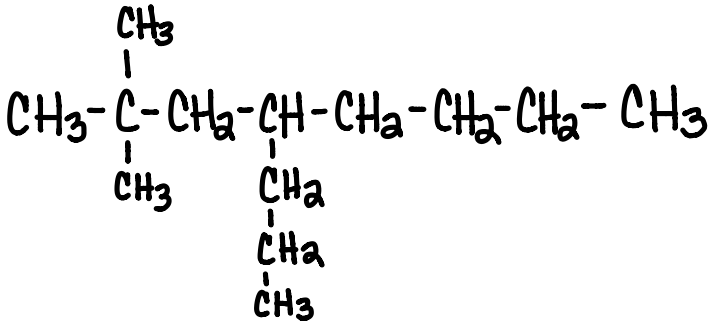


2,2-dimethyl-4-propyloctane

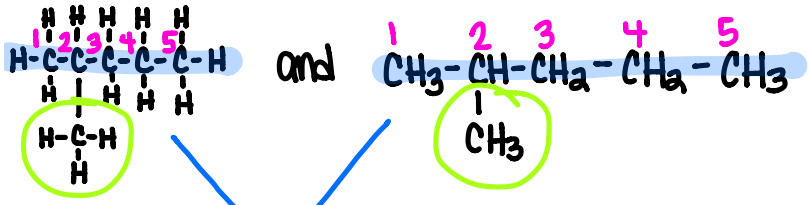
2x 1C — 3C — 8C — ↳ single bonds



condensed:

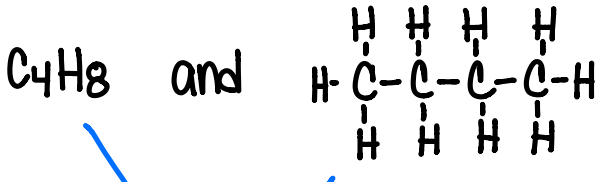


55a.



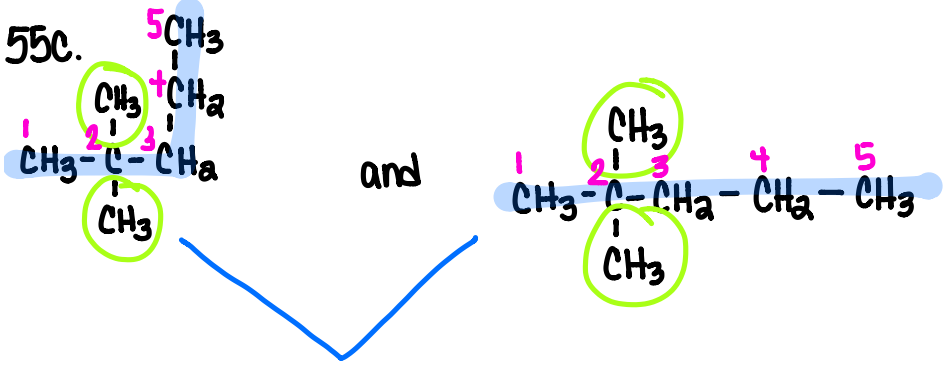
same

55b.



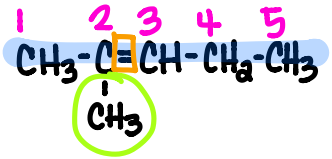
different compound
(not isomers)

55c.

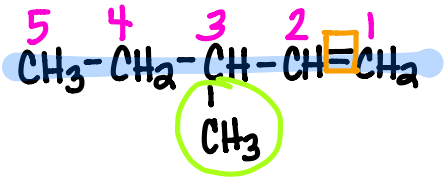


same
(2,2-dimethylpentane)

55d.



and



2-methyl-2-pentene

C_6H_{12}

3-methyl-1-pentene

C_6H_{12}

ISOMERS

Homework:

Pg. 671:

1a. CH_3-OH

alcohol

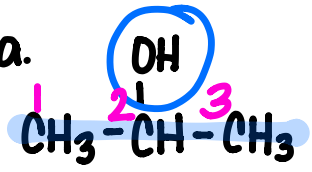
R-OH

1c. $Br-CH_2-CH_2-CH_3$

alkyl halide (halocarbon)

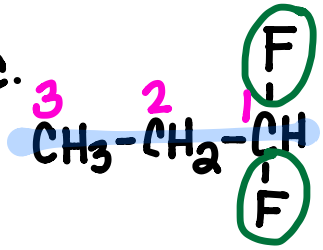
R-X

2a.



∴ 2-propanol

c.



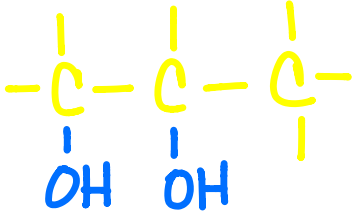
∴ 1,1, difluoropropane

4a. 1,2-propanediol

↳ single bonds

3C

2x ↳ alcohol (OH)

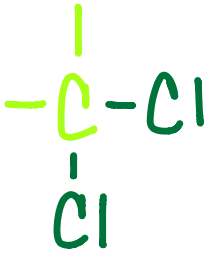


4c. dichoromethane

2x Cl

1C

↳ single bonds



Pg. 679:

1a. $CH_3-CH_2-\overset{O}{\overset{\|}{C}}-OH$

carboxylic acid

$R-\overset{O}{\overset{\|}{C}}-OH$

1c. $CH_3-CH_2-NH_2$

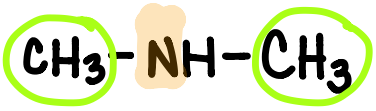
amine

$R-\underset{R'}{N}-R''$

2b. $\overset{4}{CH_3}-\overset{3}{CH_2}-\overset{2}{CH_2}-\overset{1}{\overset{O}{\overset{\|}{C}}}-OH$

butanoic acid

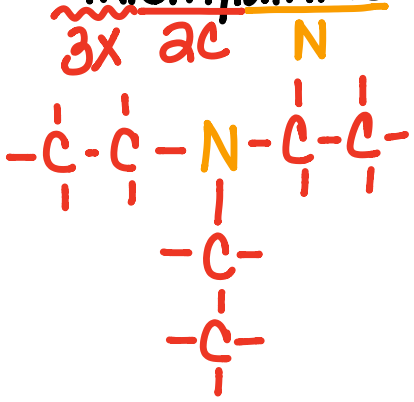
2c.



dimethylamine

3b. triethylamine

3x ac N



Pg. 694:

1a. alcohol → $R-OH$

1c. alkyl halide → $R-X$

8c. carboxylic acid → $R-\overset{O}{\overset{\|}{C}}-OH$

8e. amine → $R-\underset{R'}{N}-R''$

Pg. 679 (cont'):

37a. CH_3-OH

∴ methanol

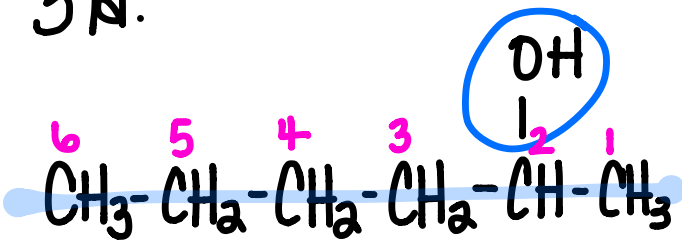
37b. $CH_3-\underset{\underset{OH}{|}}{CH}-CH_2-OH$

∴ 1,2-propanediol

37c. $CH_3-\underset{\underset{OH}{|}}{CH}-CH_2-CH_3$

∴ 2-butanol

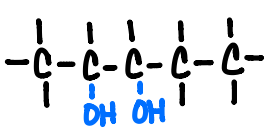
37d.



∴ 2-hexanol

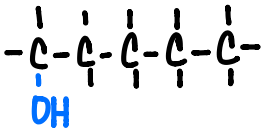
38a. 2,3-pentanediol

5C, 2x OH



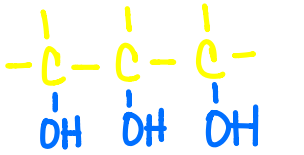
38b. 1-pentanol

5C, OH



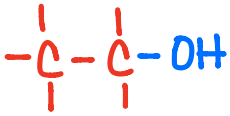
38c. 1,2,3-propanetriol

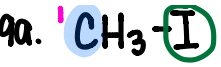
3C, 3x OH



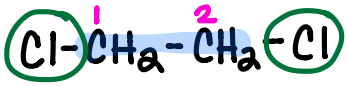
38d. ethanol

2C, OH

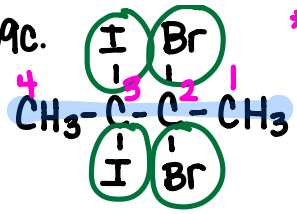


39a. 

∴ iodomethane

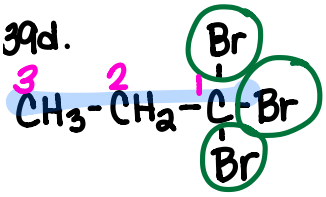
39b. 

∴ 1,2-dichloroethane

39c. 

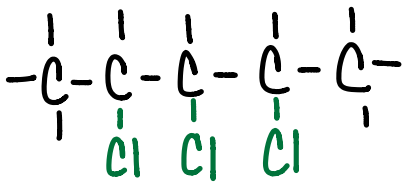
* #s to give 1st in ABC order lowest #

∴ 2,2-dibromo-3,3-diiodobutane

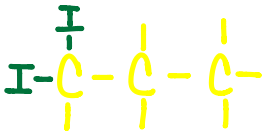
39d. 

∴ 1,1,1-tribromopropane

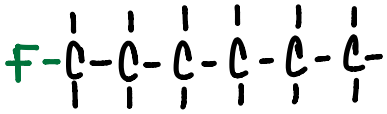
40a. 2,3,4-trichloropentane — 3x Cl; 5C; ↳ single bonds



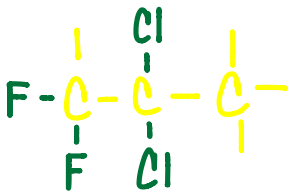
40b. 1,1-diiodopropane — 2x I; 3C; ↳ single bonds

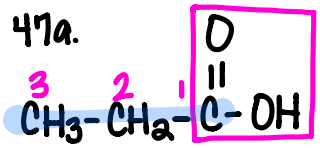


40c. 1-fluorohexane — F; 6C; ↳ single bonds

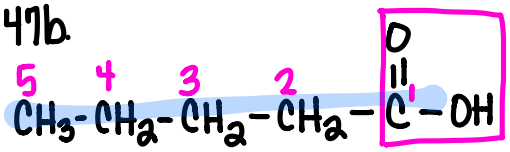


40d. 2,2-dichloro-1,1-difluoropropane — 2x Cl; 2x F; 3C; ↳ single bonds

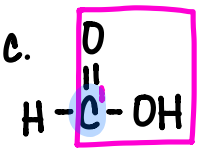


47a. 

∴ propandioic acid

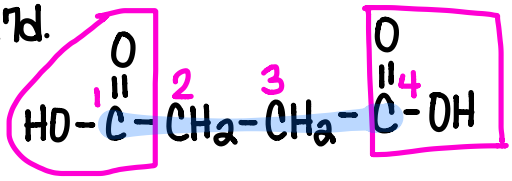
47b. 

∴ pentandioic acid

47c. 

∴ methandioic acid

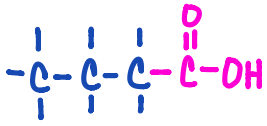
47d.



∴ butanedioic acid

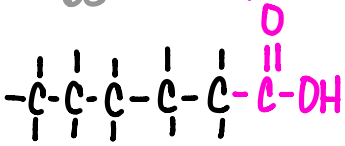
48a. butanoic acid

4C COOH



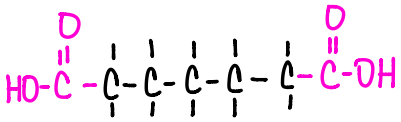
48b. hexandioic acid

6C 2x COOH



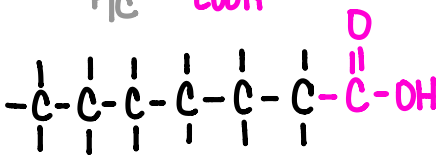
48c. heptanedioic acid

7C single bonds 2x COOH

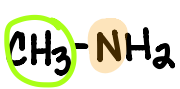


48d. heptanoic acid

7C COOH

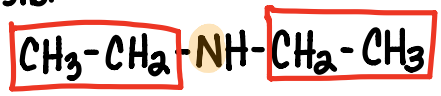


51a.



∴ methylamine

51b.

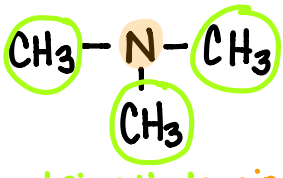


∴ diethylamine

51c.

∴ ethylmethylamine

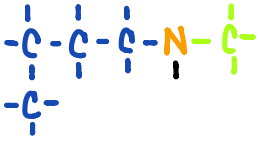
51d.



∴ trimethylamine

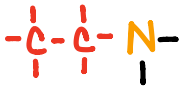
52a. butylmethylamine

4C 1C N



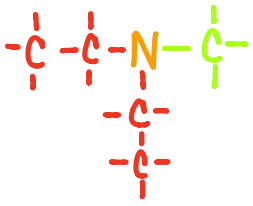
52b. ethylamine

2C N



52c. diethylmethylamine

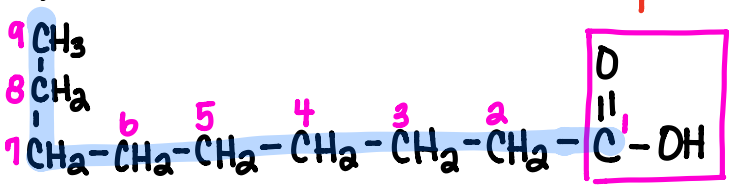
2x 2C 1C N



52d. ethylpropylamine

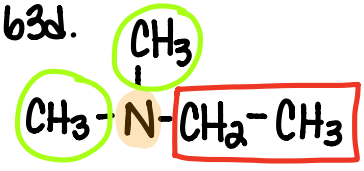
2C 2C N

63c.



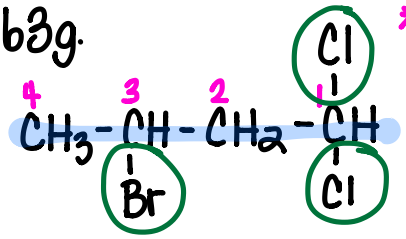
∴ nonandioic acid

63d.



∴ ethyldimethylamine

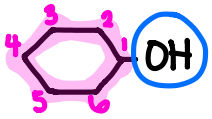
63g.



*# to get lowest set of #s

∴ 3-bromo-1,1-dichlorobutane

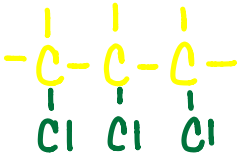
63h.



∴ cyclohexanol

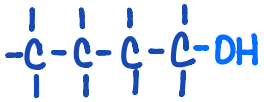
65a. 1,2,3-trichloropropane

3x Cl 3C ↳ single bonds



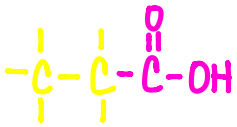
65b. 1-butanol

4C OH



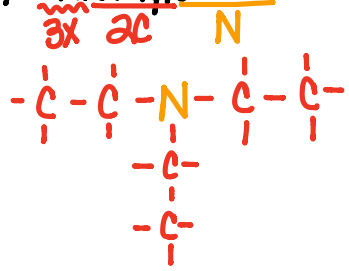
65d. propanoic acid

3C COOH

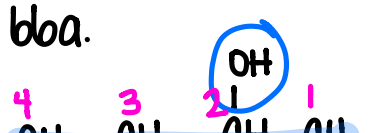


65f. triethylamine

3x 2C N



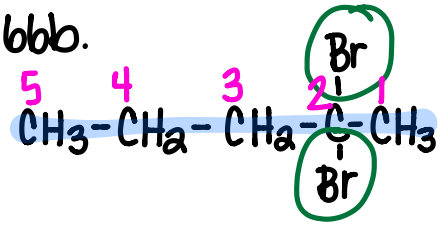
66a.



2-butanol

↳ yes!

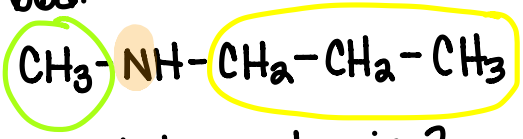
66b.



4-dibromopentane?

↳ no! 2,2-dibromopentane

66d.



methylpropylamine?

↳ yes!