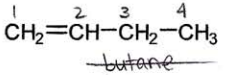
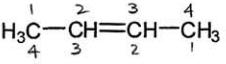
Chapter 7 Worksheet 1

Give an acceptable IUPAC name for each of the following compounds. Be sure to indicate the **stereochemistry** where appropriate.

1. 

~~butane~~
but-1-ene

but-1-ene

2. 

~~butane~~
but-2-ene

but-2-ene

3. 

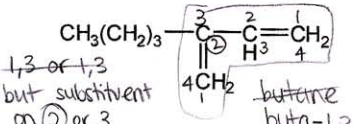
~~cyclopentane~~
cyclopent-1-ene

cyclopent-1-ene

4. 

~~cyclopentane~~
cyclopenta-1,3-diene

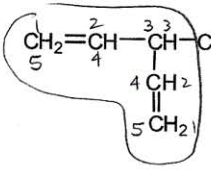
cyclopenta-1,3-diene

5. 

~~1,3 or 1,3~~
but substituent on (2) or 3

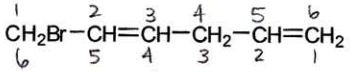
~~butane~~
buta-1,3-diene
2-butyl

2-butylbuta-1,3-diene

6. 

~~pentane~~
penta-1,4-diene
3-propyl

3-propylpenta-1,4-diene

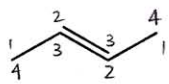
7. 

(1,4) or 2,5

~~hexane~~
hexa-1,4-diene
6-bromo

6-bromohexa-1,4-diene

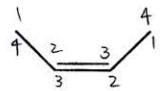
8.



~~butane~~
but-2-ene
trans

trans-but-2-ene

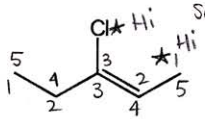
9.



~~butane~~
but-2-ene
cis

cis-but-2-ene

10.



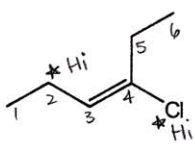
same side : Z "z same side"

(2) or 3

~~pentane~~
pent-2-ene
(2Z)
3-chloro

(2Z)-3-chloropent-2-ene

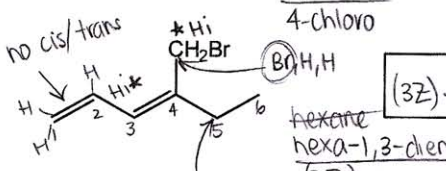
11.



~~hexane~~
hex-4-ene
(3E)
4-chloro

(3E)-4-chlorohex-4-ene

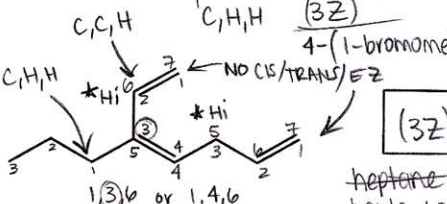
12.



~~hexane~~
hexa-1,3-diene
(3Z)
4-(1-bromomethyl)

(3Z)-4-(1-bromomethyl)hexa-1,3-diene

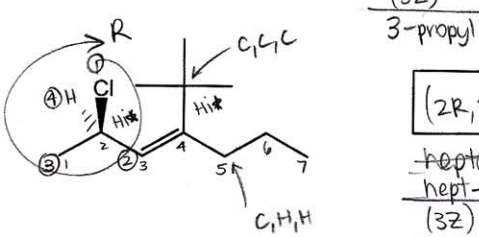
13.



~~heptane~~
hepta-1,3,6-triene
(3Z)
3-propyl

(3Z)-3-propylhepta-1,3,6-triene

14.

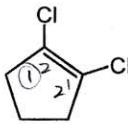


~~heptane~~
hept-3-ene
(3Z) (2R)
2-chloro
4-t-butyl

(2R,3Z)-4-t-butyl-2-chlorohept-3-ene

★ can # from either side, resort to alphabet of substituents. "chloro vs. methyl"

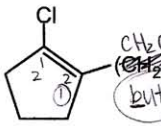
15.



~~cyclopentane~~
cyclopent-1-ene
1-chloro
2-methyl

1-chloro-2-methylcyclopent-1-ene

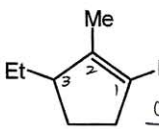
16.



$CH_2CH_2CH_2CH_3$
~~$(CH_2)_3CH_3$~~
butyl vs. chloro
cyclopent-1-ene
1-butyl
2-chloro

1-butyl-2-chlorocyclopent-1-ene

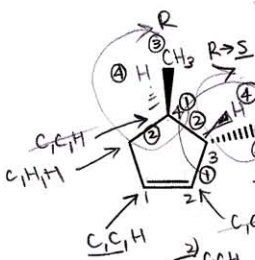
17.



cyclopent-1-ene
~~1-methyl~~
~~2-methyl~~
3-ethyl
1,2-dimethyl

3-ethyl-1,2-dimethylcyclopent-1-ene

18.

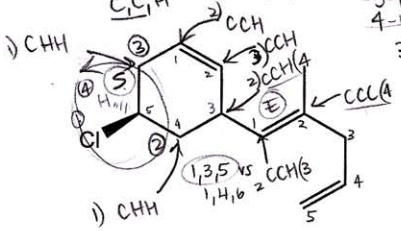


C,C,H
C,H,H
C,C,H
C,C,H
H,H,H
R
R→S
CH_3
H
CH_3

cyclopent-1-ene
(3S) (4R)
~~3-methyl~~
~~4-methyl~~
3,4-dimethyl

(3S,4R)-3,4-dimethylcyclopent-1-ene

19.



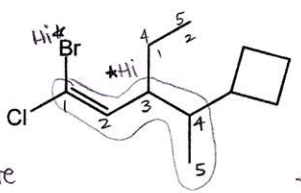
1) CHH
CCH
CCH
CCH
CCCH
1) CHH
1,3,5 vs 1,4,6
CCH_3
H,H,H
Cl

cyclohex-1-ene
(5S)
5-chloro
3-((1E)-2-methylpenta-1,4-dienyl)

(5S)-5-chloro-3-((1E)-2-methylpenta-1,4-dienyl)cyclohex-1-ene

★★ The longest chain must contain @ least 1 double bond to even be considered as the parent chain.

20.



Hi
Br
Hi
Cl

priority 1 → ★ The longest chain that contains as many double bonds as possible. ← priority 2

pent-1-ene
(1Z)
1-bromo
1-chloro
3-ethyl
4-cyclobutyl

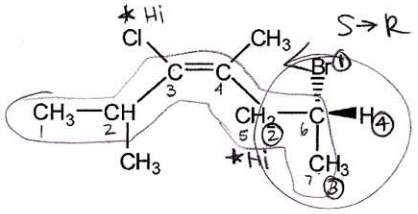
(1Z)-1-bromo-1-chloro-4-cyclobutyl-3-ethylpent-1-ene

★ # it to give the most substituents after finding longest chain because there are multiple "longest chains"

★ note: if it looked like this

that is a complex sub..
4-(1-cyclobutylmethyl)

21.



(3E,6R)-6-bromo-3-chloro-2,4-dimethylhept-3-ene

hept-3-ene

(3E) (6R)

~~2-methyl~~

3-chloro

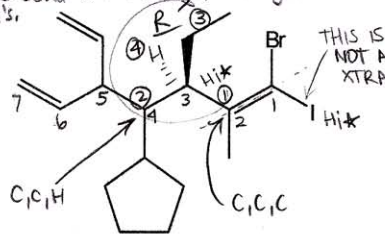
~~4-methyl~~

6-bromo

2,4-dimethyl

* Because you can # either way to get double bond on 1 and 6, # to give subs lowest #'s.

22.



THIS IS NOT AN XTRA CARBON!!!

(1E,3R)-1-bromo-4-cyclopentyl-5-(1-ethenyl)-3-ethyl-2-methyl-1-iodohepta-1,6-diene

hepta-1,6-diene

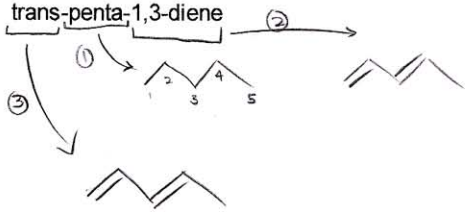
(1E) (3R)

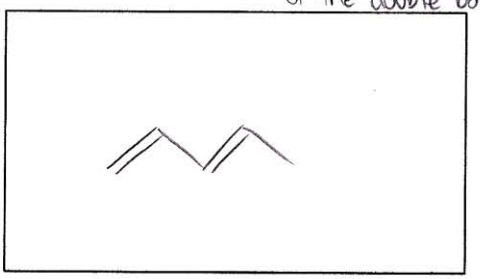
✓ 1-bromo
✓ 1-iodo
✓ 2-methyl
✓ 3-ethyl
✓ 4-cyclopentyl
✓ 5-(1-ethenyl)

* was ethene, but it is a sub, so it is ethenyl w/ 1 indicating the pos of the double bond.

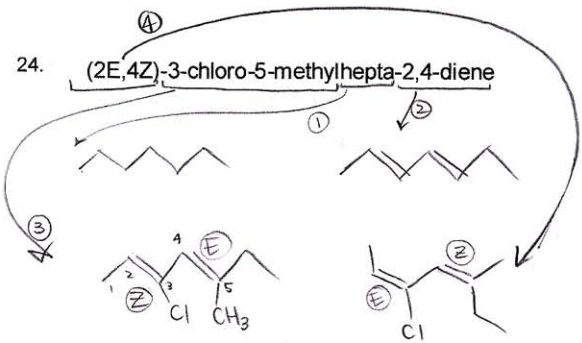
Draw the correct structure that corresponds to the following IUPAC names. Be sure to indicate **stereochemistry** where appropriate.

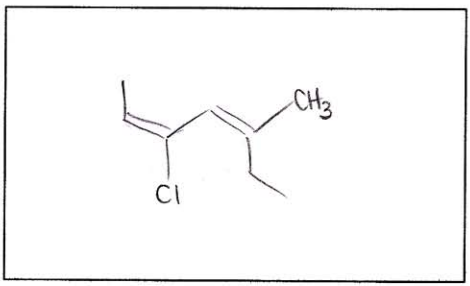
23. trans-penta-1,3-diene



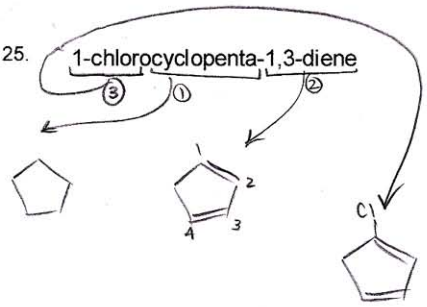


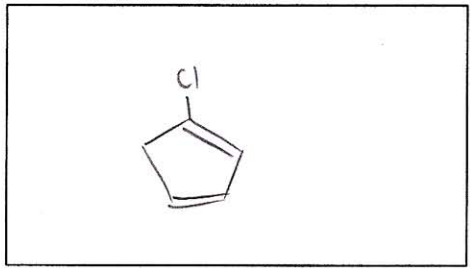
24. (2E,4Z)-3-chloro-5-methylhepta-2,4-diene



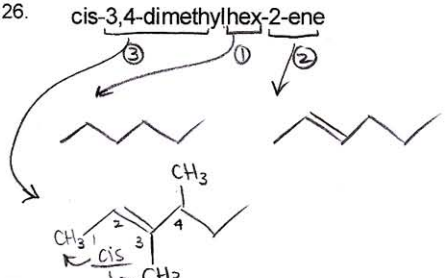


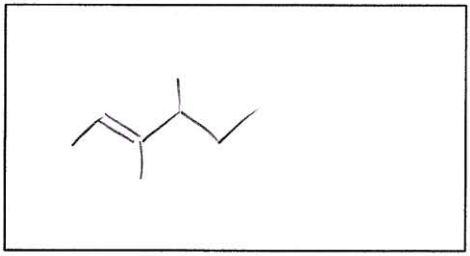
25. 1-chlorocyclopenta-1,3-diene



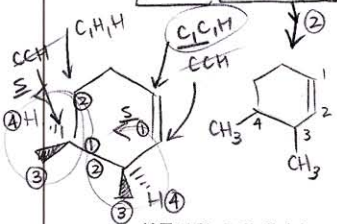


26. cis-3,4-dimethylhex-2-ene

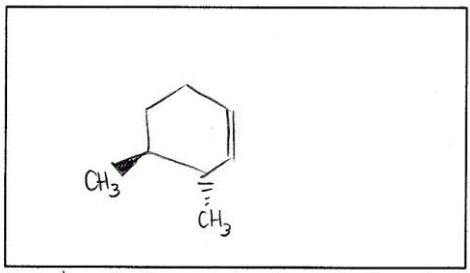




27. (3R,4S)-3,4-dimethylcyclohexene

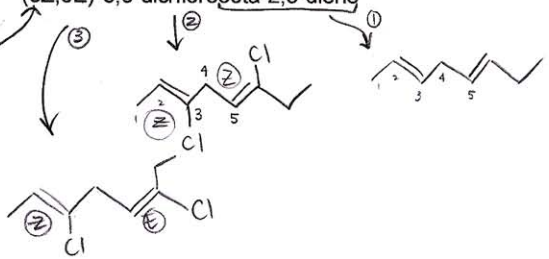


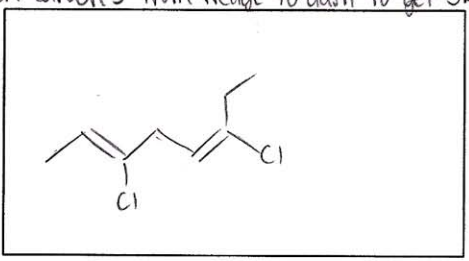
★ I put them both on wedges initially + found I only needed to flip the CH_3 on carbon 3 from wedge to dash to get 3R.



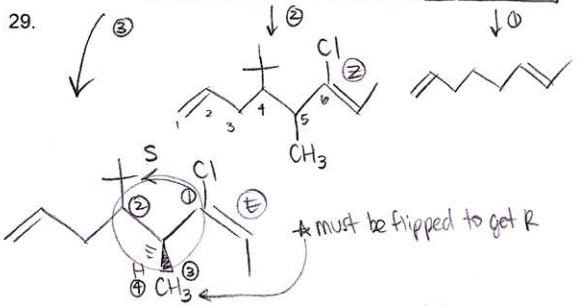
28. (3Z,5E)-3,6-dichlorocta-2,5-diene

★ SHOULD BE 2Z





29. (5R,6E)-4-t-butyl-6-chloro-5-methylocta-1,6-diene



★ must be flipped to get R