

## Basic Competency Quiz #3

*Intro to Organic Chemistry, 3<sup>rd</sup> ed., Brown & Poon, ch. 1**Unless otherwise specified, each question is worth 1 points.*

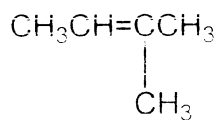
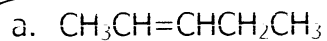
1. Why is cyclopropyne an unstable or unlikely compound? (2 points)



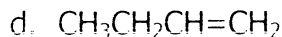
ANGLE STRAIN

SP ↔ 180° ANGLES

2. Which of the following compounds can exist as
- cis/trans*
- isomers? (Circle your choice(s), if any.) (1 point each)



b.

For any of the above compounds that can exist as *cis/trans* isomers, draw and label the *cis* and *trans* isomers. (1 point per isomer)

(cis)



(cis)



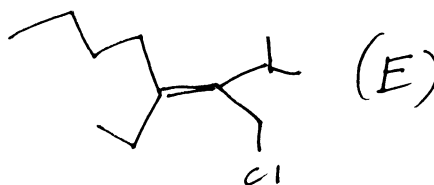
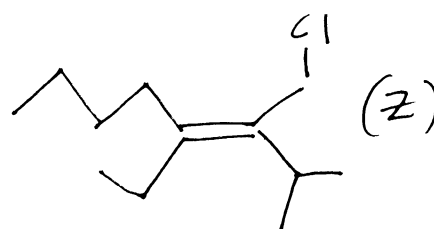
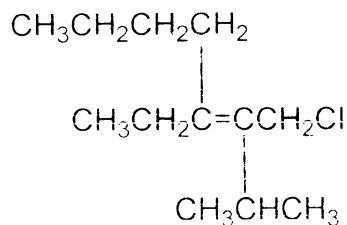
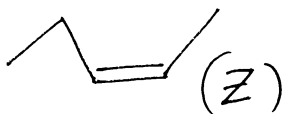
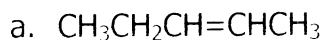
(trans)



(trans)

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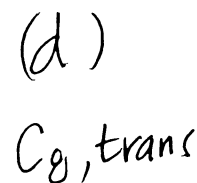
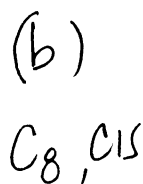
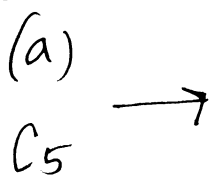
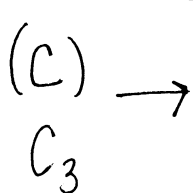
3. Draw and label (*but do not name*) the *E* and *Z* isomers for each of the following compounds.



4. List the following compounds from lowest to highest melting points: (2 points)

- a. 1-pentene
- b. *cis*-3-octene
- c. propene
- d. *trans*-3-octene

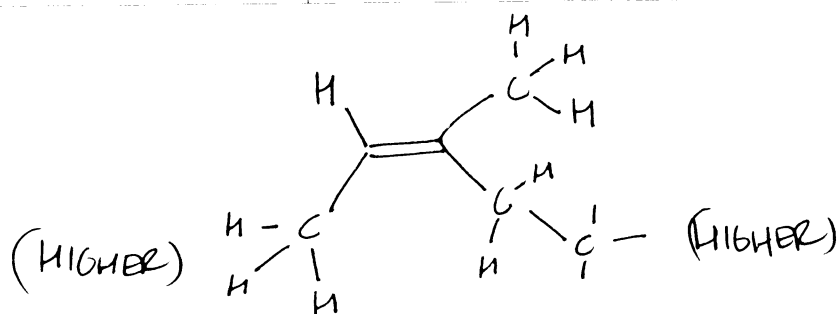
LOWEST → HIGHEST



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5. Complete the following table. (1 point each)

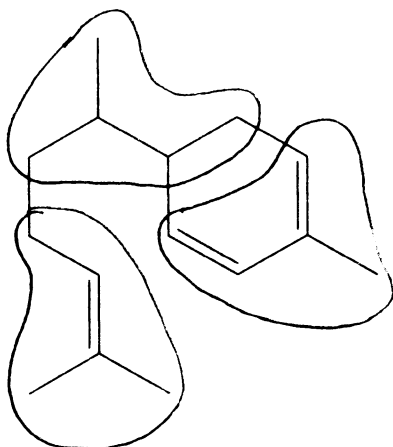
	NAME	FORMULA
A	3,3-dimethylcyclopentene	
B	2,4-DIMETHYLCYCLOHEXENE	
C	6-bromo-2,3-dimethyl-2-hexene	
D	trans-7-METHYL-3-OCTENE	
E	2-pentyne	
F	(Z)-3-methyl-2-heptene	



Unless otherwise specified, each question is worth 1 point.

6. OPTIONAL / EXTRA CREDIT: Find the terpenes!

+1 extra credit point will be assigned if all the terpenes are correctly identified in the following compound found in the essential oil of ginger. Any error(s) = +0 extra credit points.



NO COUNTING  
SAME C IN  
TWO ISOPRENE  
UNITS!

$C_{15} = \underline{\underline{3}}$  ISOPRENE UNITS.

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*Intro to Organic Chemistry, 3<sup>rd</sup> ed., Brown & Poon, ch. 4*

Wallace

revised 2/03/2009

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**Abbreviated Periodic Table of the Elements**

1 1A											13 3A	14 4A	15 5A	16 6A	17 7A	18 8A	
1 H 1.008	2 2A											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18
3 Li 6.94	4 Be 9.01	3 3B	4 4B	5 5B	6 6B	7 7B	8 8B	9 8B	10 8B	11 1B	12 2B	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
11 Na 22.99	12 Mg 24.31	21 Sc	22 Ti	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.38	31 Ga 69.72	32 Ge 72.59	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (98)	44 Ru 101.1	45 Rh 102.9	46 Pd 106.4	47 Ag 107.9	48 Cd 112.4	49 In 114.8	50 Sn 118.7	51 Sb 121.8	52 Te 127.6	53 I 126.9	54 Xe 131.3
55 Cs 132.9	56 Ba 137.3	57 La* 138.9	72 Hf 178.5	73 Ta 180.9	74 W 183.9	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.1	79 Au 197.0	80 Hg 200.6	81 Tl 204.4	82 Pb 207.2	83 Bi 209.0	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra 226	89 Ac** (227)	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Uun	111 Uuu	112 Uub						

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(PEN TESTING)