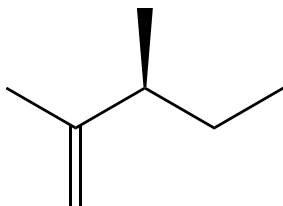


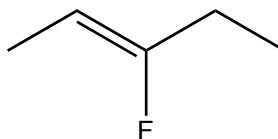
1. (12 pts.) Provide names for the following alkenes, use the *Z/E* nomenclature where appropriate.

1. _____

a.



b.



2. _____

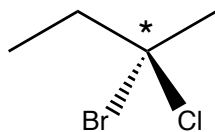
3. _____

4. _____

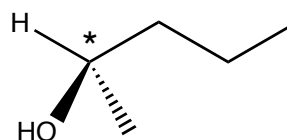
2. (12 pts.) Determine the configuration of the chiral centers that are marked with a star.

5. _____

a.



b.

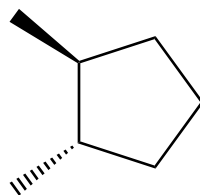


6. _____

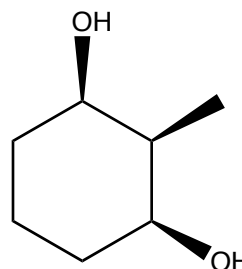
7. _____

3. a. (8 pts.) Place a star next to the chiral centers on the following molecules.

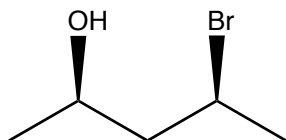
i.



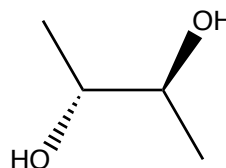
ii.



iii.

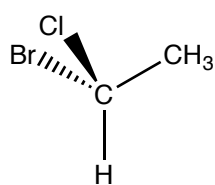
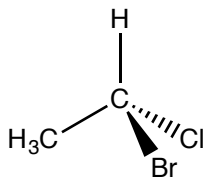


iv.



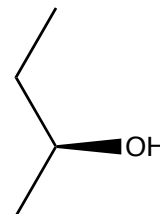
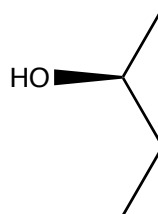
4. (6 pts. ea.) Determine whether the following pairs of molecules are enantiomers, diastereomers, or different views of the same molecule.

i.



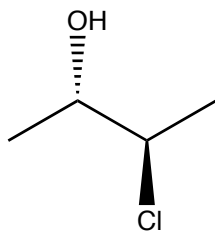
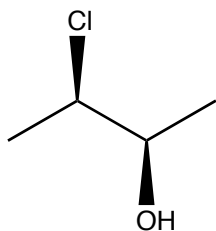
enantiomers

ii.



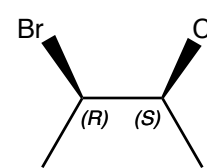
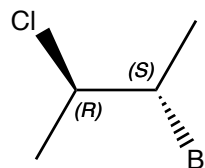
same

iii.



diastereomers

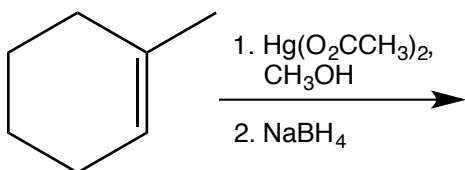
iv.



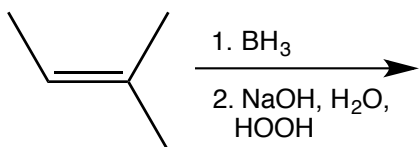
enantiomers

5. (6 pts. each) Predict the organic products of the following reactions.

a.

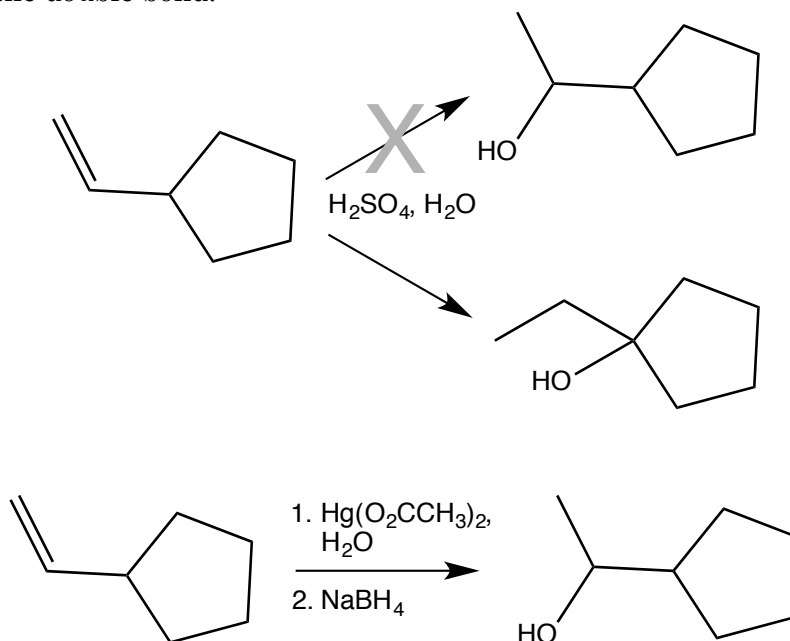


b.



6. (10 pts.) Draw a Lewis structure for BH_3 and briefly describe why BH_3 is an electrophile.

7. (10 pts.) Two reactions are drawn below. In the first reaction, the electrophile and the nucleophile are not added to opposite ends of the double bond, instead the nucleophile adds to a location a carbon atom away from the position of the double bond. In the second reaction, the reaction occurs the double bond.



Explain why the two reactions produce different results.

1	H 1.0079											2	He 4.0026																						
3	Li 6.941	4	Be 9.012											10	Ne 20.1797																				
11	Na 22.989	12	Mg 24.305											17	Cl 35.453																				
19	K 39.098	20	Ca 40.078	21	Sc	22	Ti	23	V	24	Cr	25	Mn	26	Fe	27	Co	28	Ni	29	Cu	30	Zn	31	Ga	32	Ge	33	As	34	Se	35	Br	36	Kr
37	Cs 132.905	38	Sr 87.62	39	Y	40	Zr	41	Nb	42	Mo	43	Tc	44	Ru	45	Rh	46	Pd	47	Ag	48	Cd	49	In	50	Sn	51	Sb	52	Te	53	I	54	Xe
55	Rb 85.468	56	Ba 137.327	57	La	72	Hf	73	Ta	74	W	75	Re	76	Os	77	Ir	78	Pt	79	Au	80	Hg	81	Tl	82	Pb	83	Bi	84	Po	85	At	86	Rn
87	Fr 223.018	88	Ra 226.025	89	Ac	104	Rf	105	Db	106	Sg	107	Bh	108	Hs	109	Mt	110		111		112		114		116							118		

58	Ce	59	Pr	60	Nd	61	Pm	62	Sm	63	Eu	64	Gd	65	Tb	66	Dy	67	Ho	68	Er	69	Tm	70	Yb	71	Lu
90	Th	91	Pa	92	U	93	Np	94	Pu	95	Am	96	Cm	97	Bk	98	Cf	99	Es	100	Fm	101	Md	102	No	103	Lr