Show the products of the following transformations. Mechanistic details are not required, but be sure to indicate relative stereochemistry where necessary (four parts; points each)





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Your Name\_\_\_\_\_

## 1. (continued)







2. The reactions below would not proceed as indicated. Provide a brief but detailed explanation, and indicate the structure of the product(s) that would be formed instead of (or in addition to) the product that is drawn (**#** points each).





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Your Name

(continued). 2.









Your Name Cey

3. Propose a reasonable mechanism.  $l^{\circ} p^{+}$ 









4b. Propose a structure for intermediate A. Be sure to indicate the double bond geometry (E or Z) and provide a rationale for the stereochemical assignment ( points)



Your Name\_

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> 6. Propose a multistep synthesis starting with any materials that contain 6 carbons or less. Reagents that contain more than 6 carbons but do not get incorporated into the product (e.g. PPh3) may also be used. 20 p + 3.

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