

NAME _____

ID # _____

ORGANIC CHEMISTRY I (2301-003)

1:25 – 2:15 pm, November 12, 2007

Exam 3

When the exam begins, write your name at the top of the first two pages.

You may use pen or pencil. However, re-grades will be considered only for exams completed in non-eraseable pen.

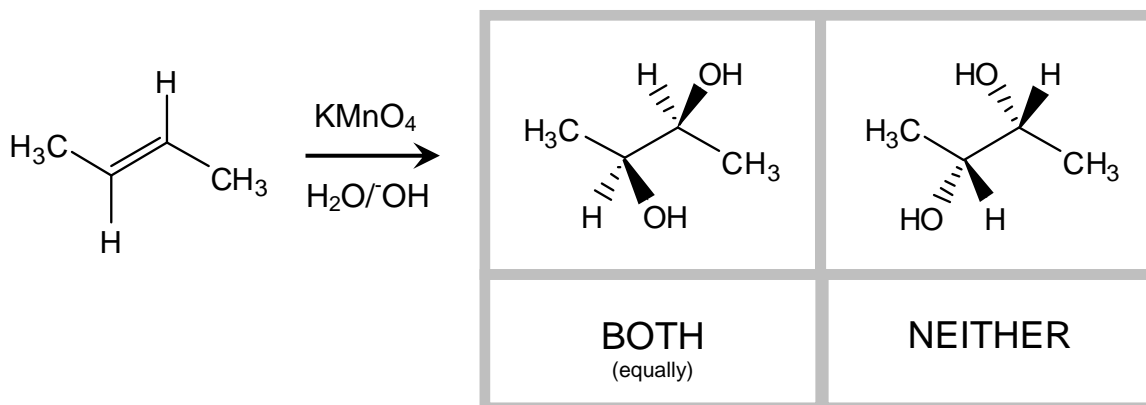
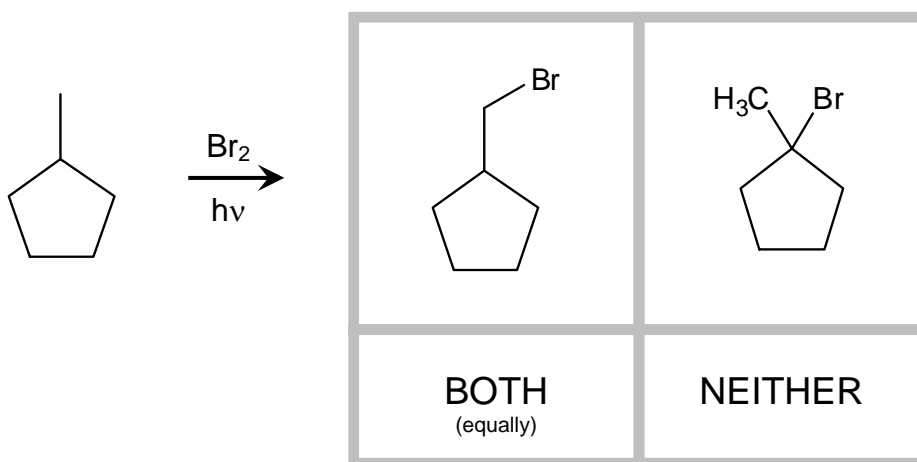
Please write your answers in the boxes/spaces provided. If your answer is not in the appropriate space (say, for example, it's on the back of the page), draw us an arrow and/or note telling us where to look.

NAME _____

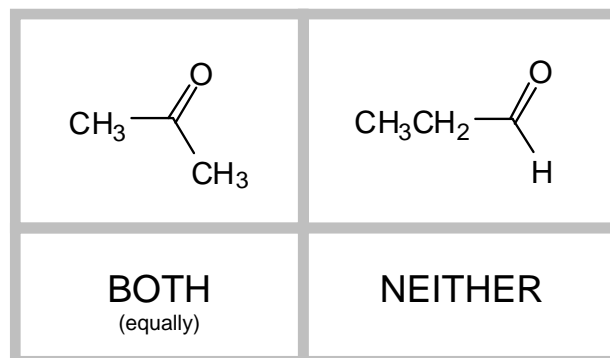
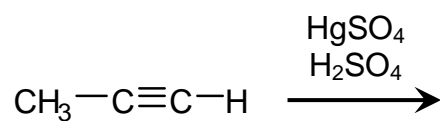
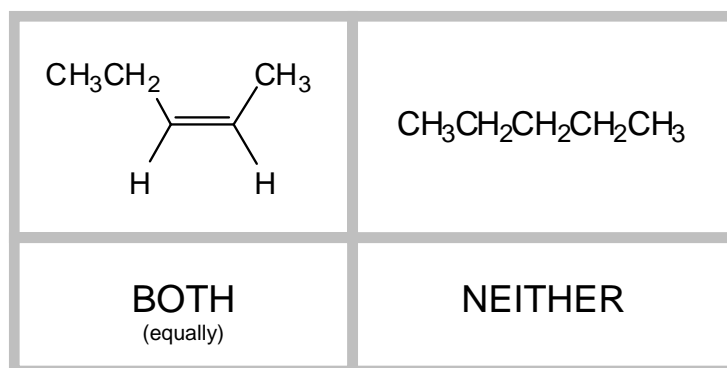
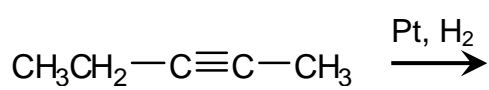
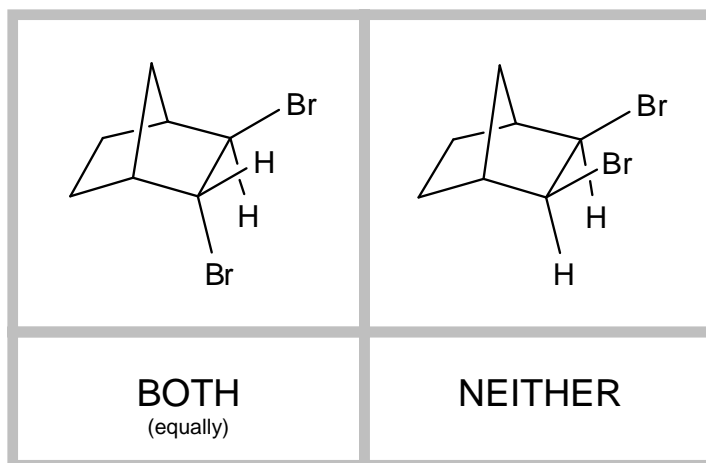
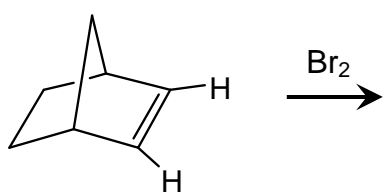
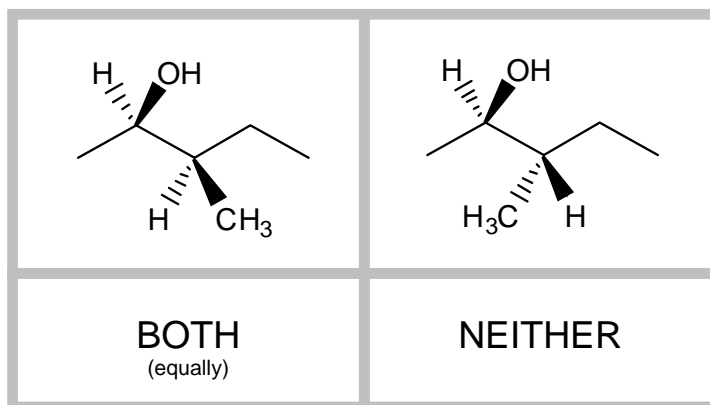
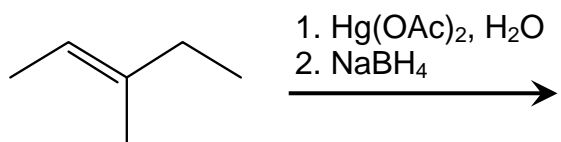
Scoring: 1. _____ / 24 4. _____ / 16
 2. _____ / 25 5. _____ / 15
 3. _____ / 20

Total Score: _____ / 100

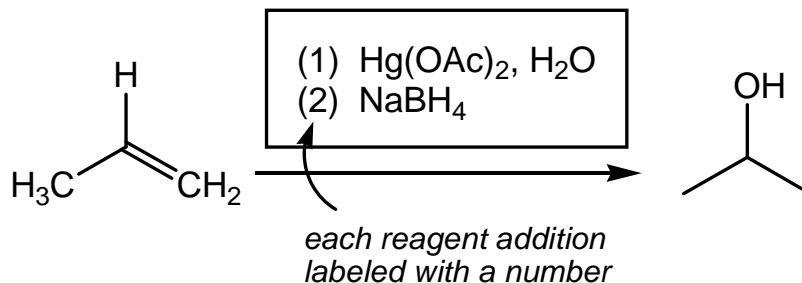
1. (24 pts) Each of the reactions below is drawn with two possible products. If one of the two products predominates, circle that preferred product. If the two products are produced equally, circle "BOTH". If neither product would result from the reaction, circle "NEITHER". **Circle one answer only.**



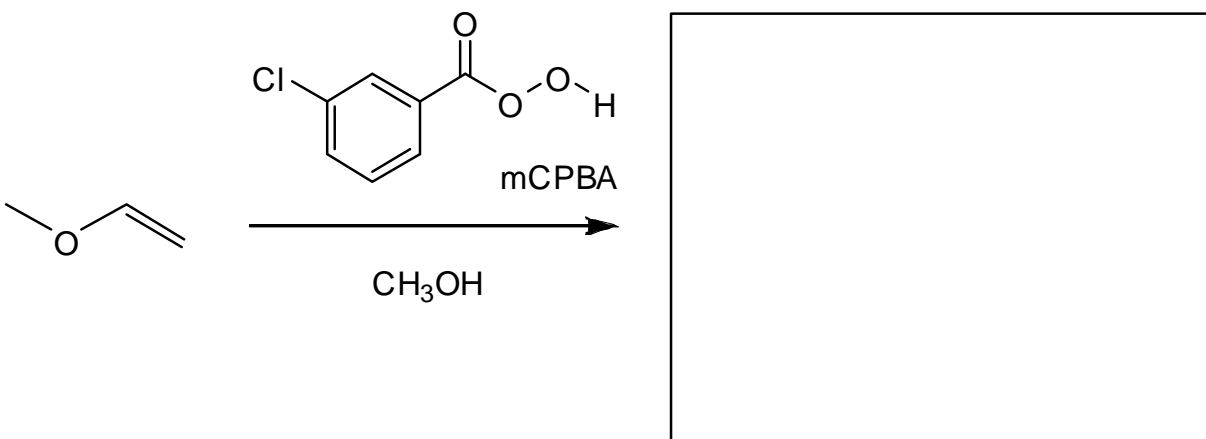
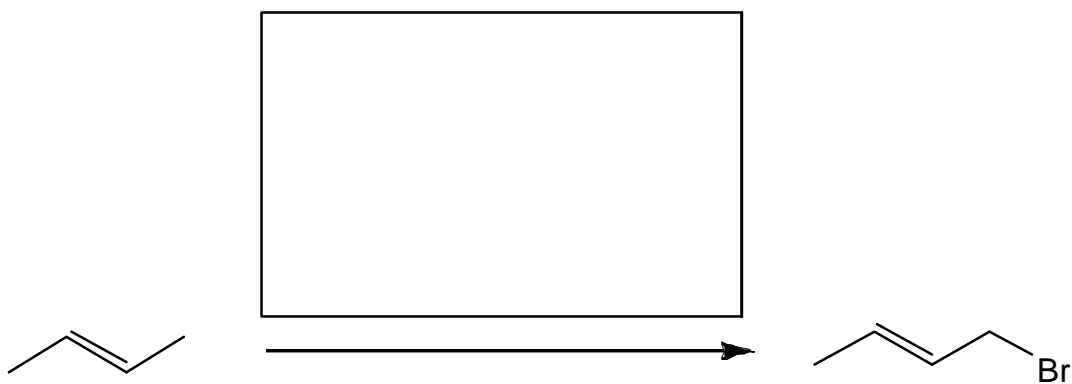
(Problem 1 continues on the next page)



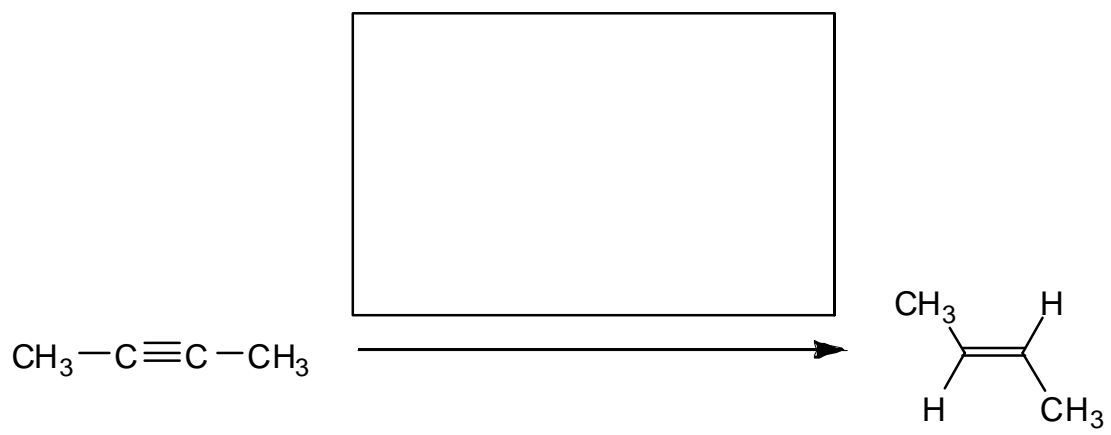
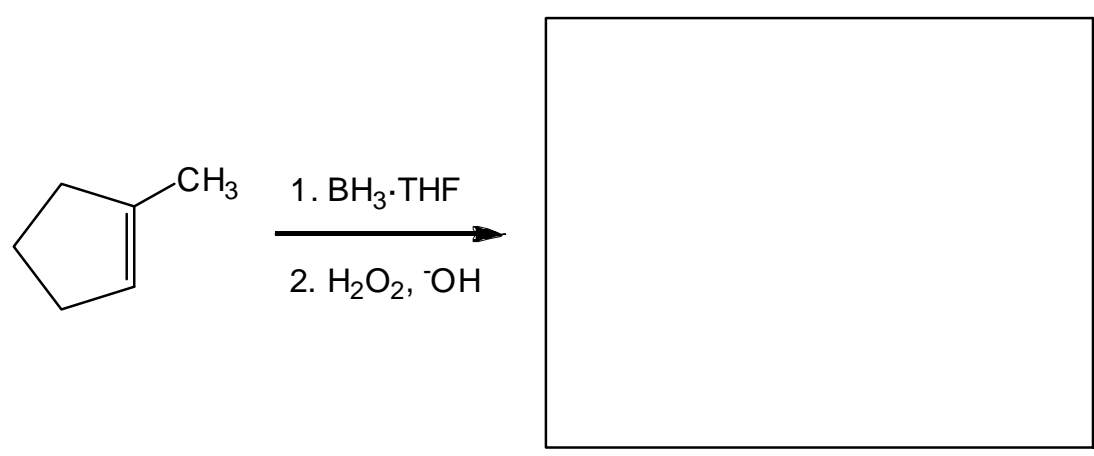
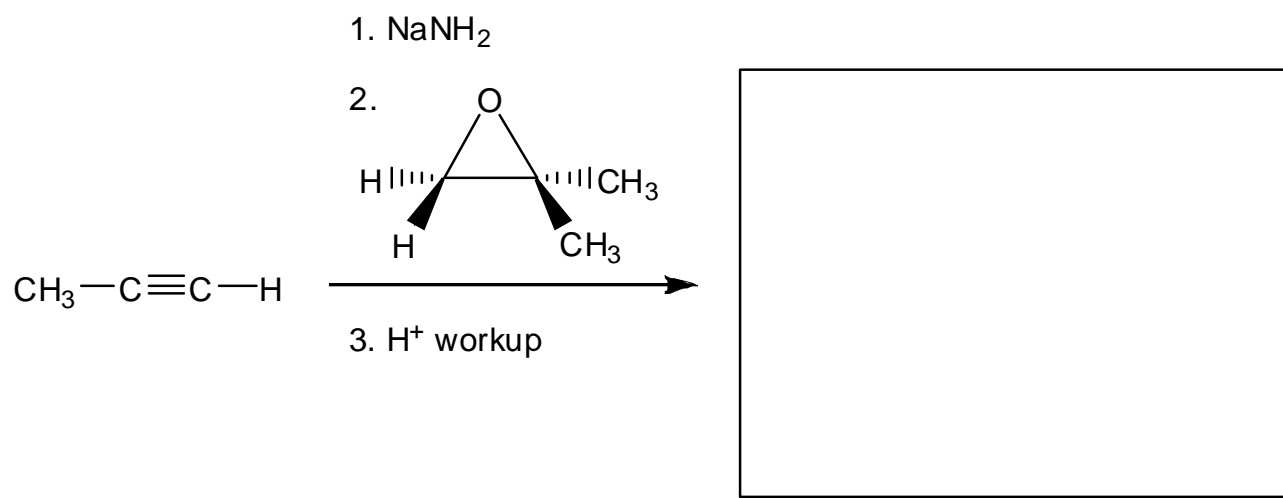
2. (25 pts) For each of the reactions below, fill in the empty box corresponding to reactants, reagents or products. For reactions that require a sequence of multiple reagent additions, make sure each addition in your “recipe” is labeled with a number. For example:



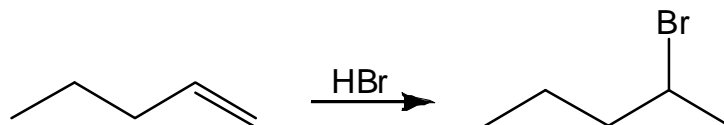
Give only one answer in each box. For reactions that you expect to yield multiple products, give the major product. For reactions that yield multiple enantiomers, draw only one enantiomer in the box, and include the note “+ enantiomer”.



(Problem 2 continues on the next page)

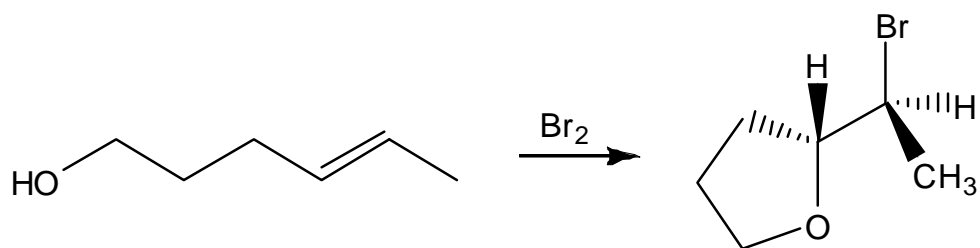


3. (20 pts) Draw a mechanism (using “electron pushing”) for each of the reactions shown below. Draw each mechanistic step explicitly; don’t cheat by combining multiple processes in a single step. Use only the molecules shown in the problem; don’t invoke generic species. (E.g., don’t use “H-A” as a generic acid.)



Mechanism:

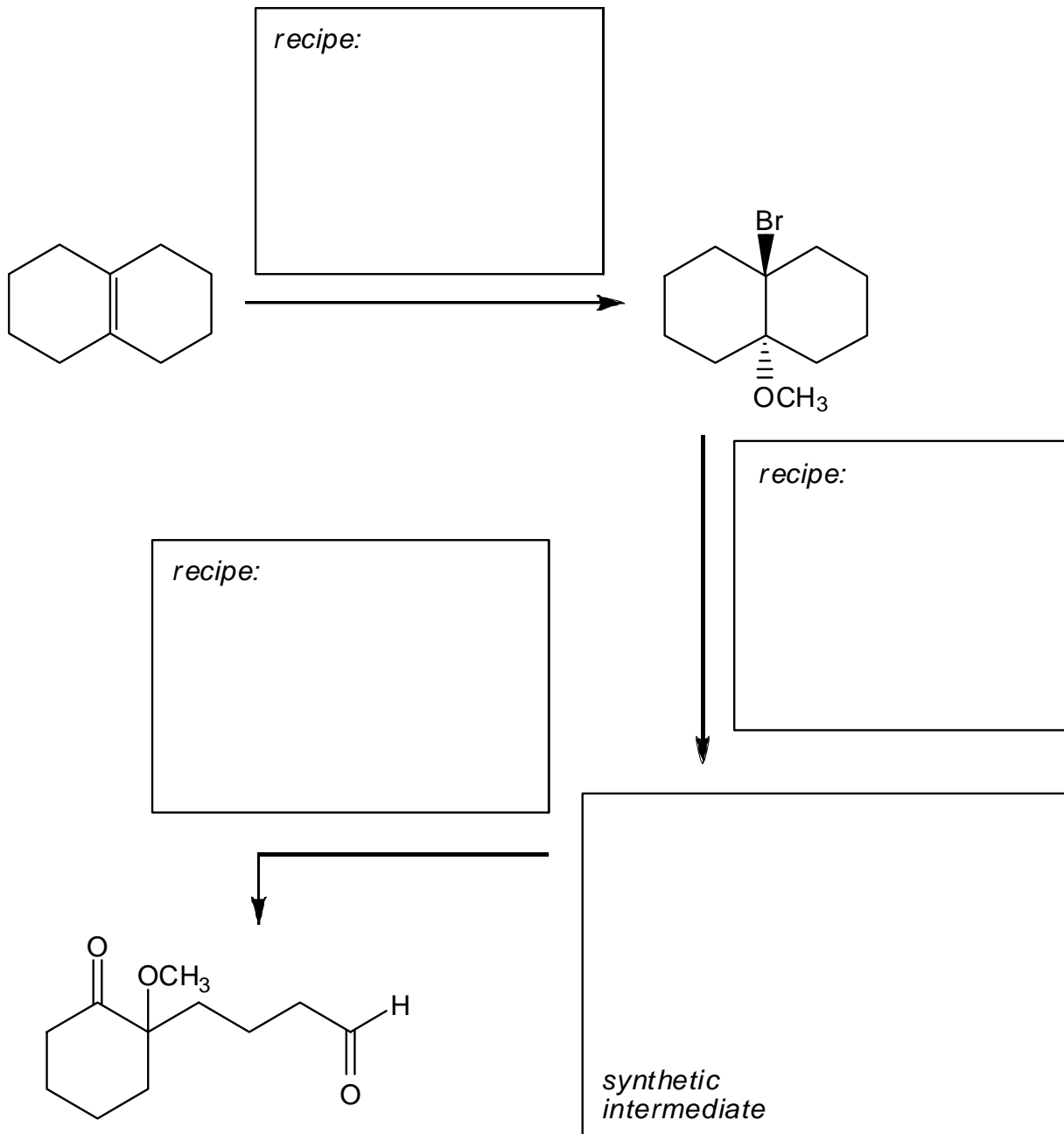
(Problem 3 continues on the next page)



Draw your mechanism to explain only this product, and only this enantiomer.

Mechanism:

4. (16 pts) In the multistep synthesis below, some reagents and synthetic intermediates are missing. Draw the missing parts in the empty boxes. For reactions that require a sequence of multiple reagent additions, make sure each addition in your “recipe” is labeled with a number.



5. (15 pts) Propose a multistep synthesis of the molecule shown below, using hydrocarbons (alkanes, alkenes or alkynes, but no functional groups) containing **four carbons or less** as starting materials. You can use any reagents and reactions we've learned about so far. Provide one answer to this problem only—don't hedge your bets by giving multiple possible answers. Do, however, feel free to draw an incomplete route—we will give you partial credit where we can.

