



| page | points |  |
|------|--------|--|
| 3    | 38     |  |
| 4    | 12     |  |
| 5    | 12     |  |
| 6    | 12     |  |
| 7    | 12     |  |
| 8    | 7      |  |
| 9    | 7      |  |
|      | 100    |  |

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ID number

Draw a specific structure (no generic R groups) that has a pKa close to the number given.

-5

20

5

25

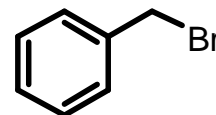
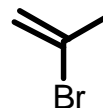
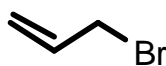
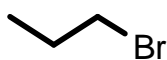
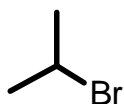
10

35

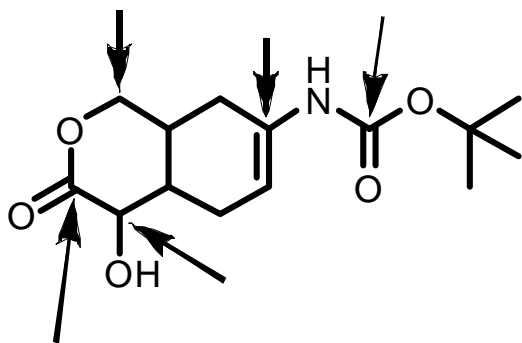
15

45

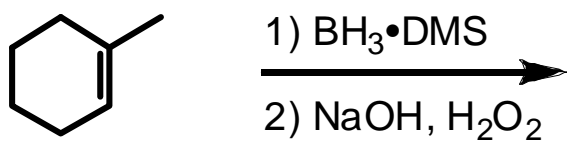
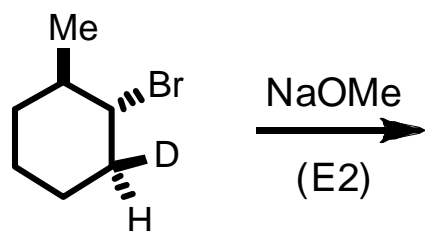
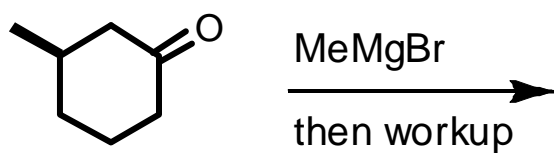
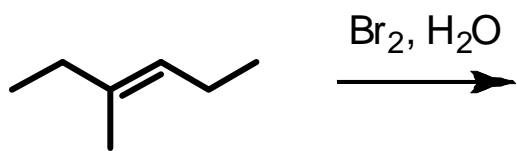
Rank the following from most reactive toward substitution under usual SN1 conditions with a #1, to the least reactive with a 6.

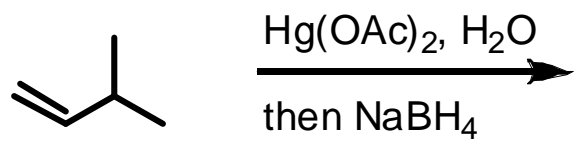
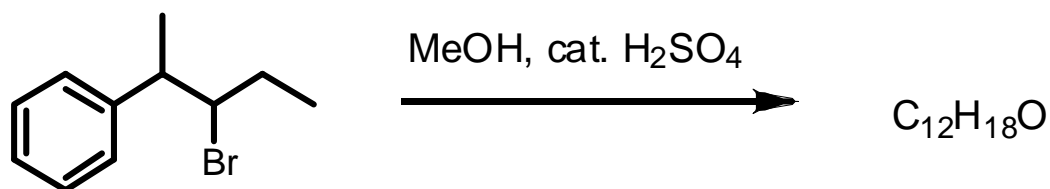
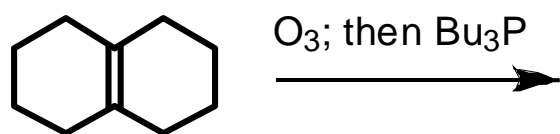


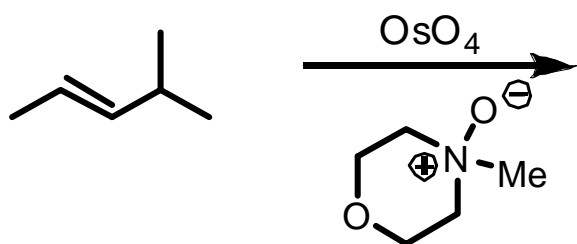
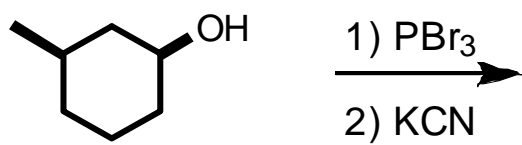
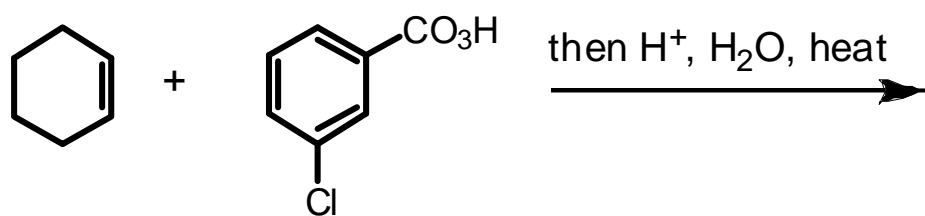
Identify the oxidation states of the indicated carbons.



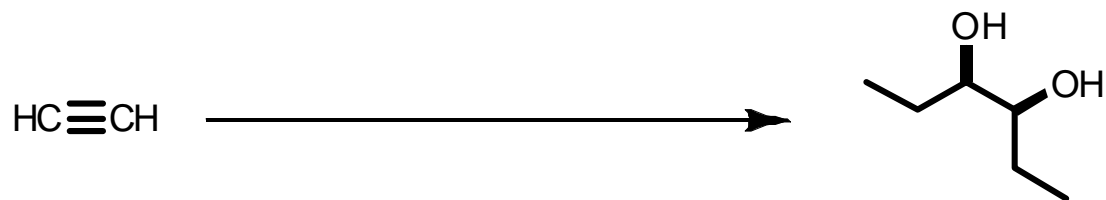
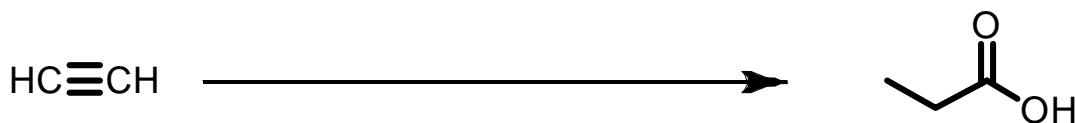
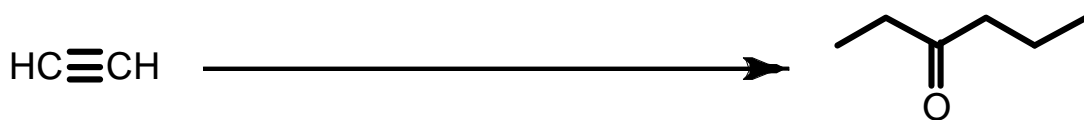
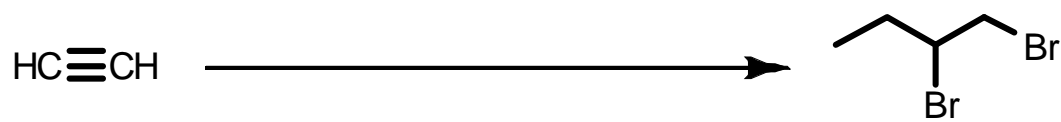
Show products for the following reactions. For some questions stereochemistry is a critical part of the answer for full marks.



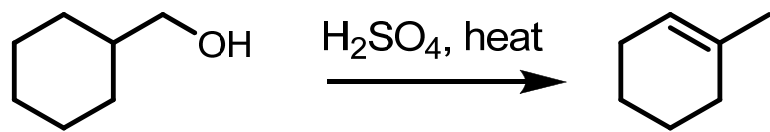




Provide reagents to effect the following transformations. More than one step may be required.



Provide a plausible mechanism for the following transformation.





Predict the product and provide a plausible mechanism.

