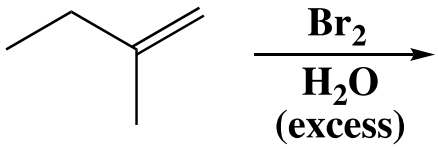
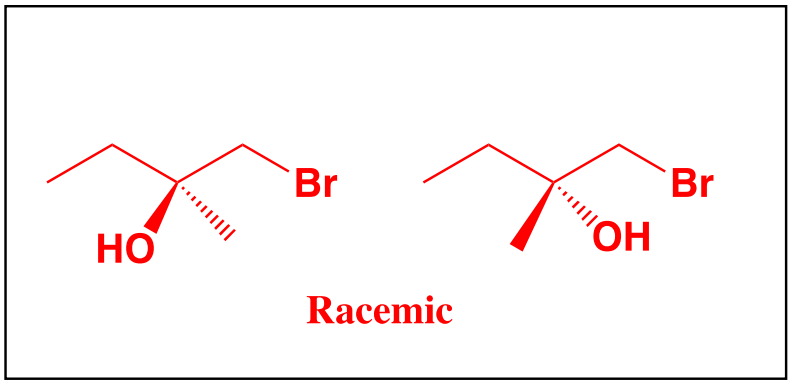
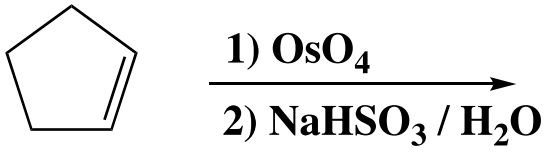
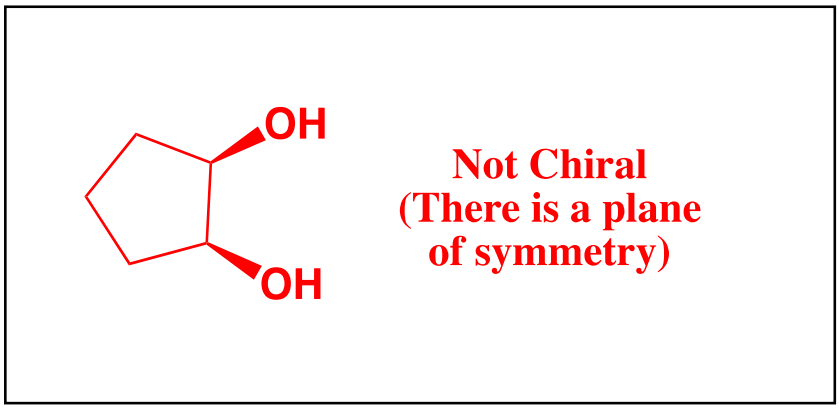
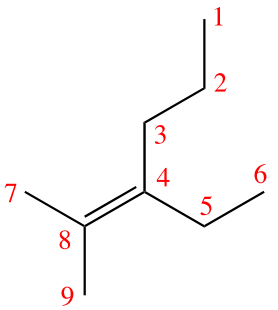
1 – 4. For the following reactions, draw the predominant product or products. You must draw the structures of all the product stereoisomers and indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.

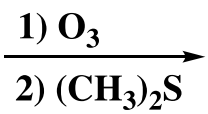


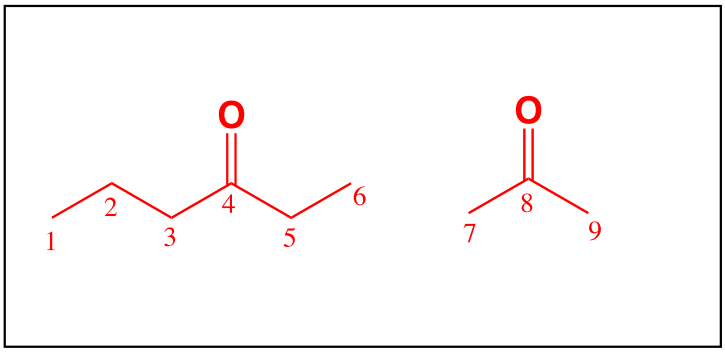


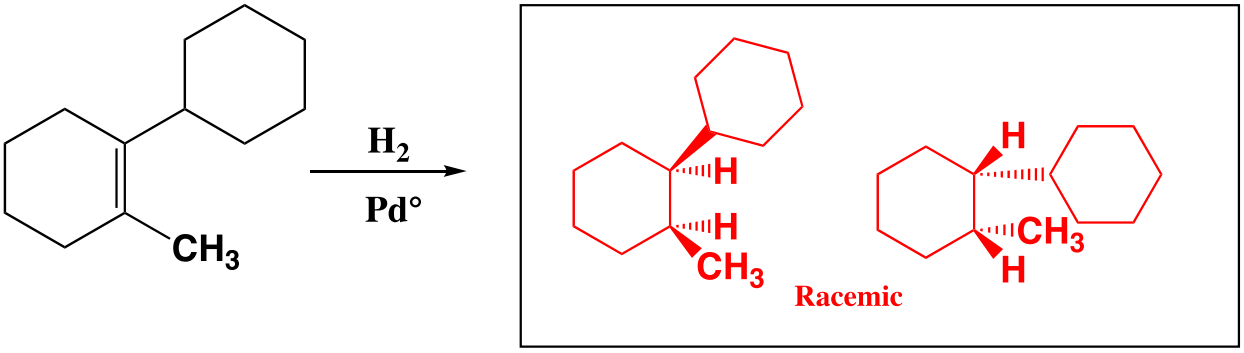






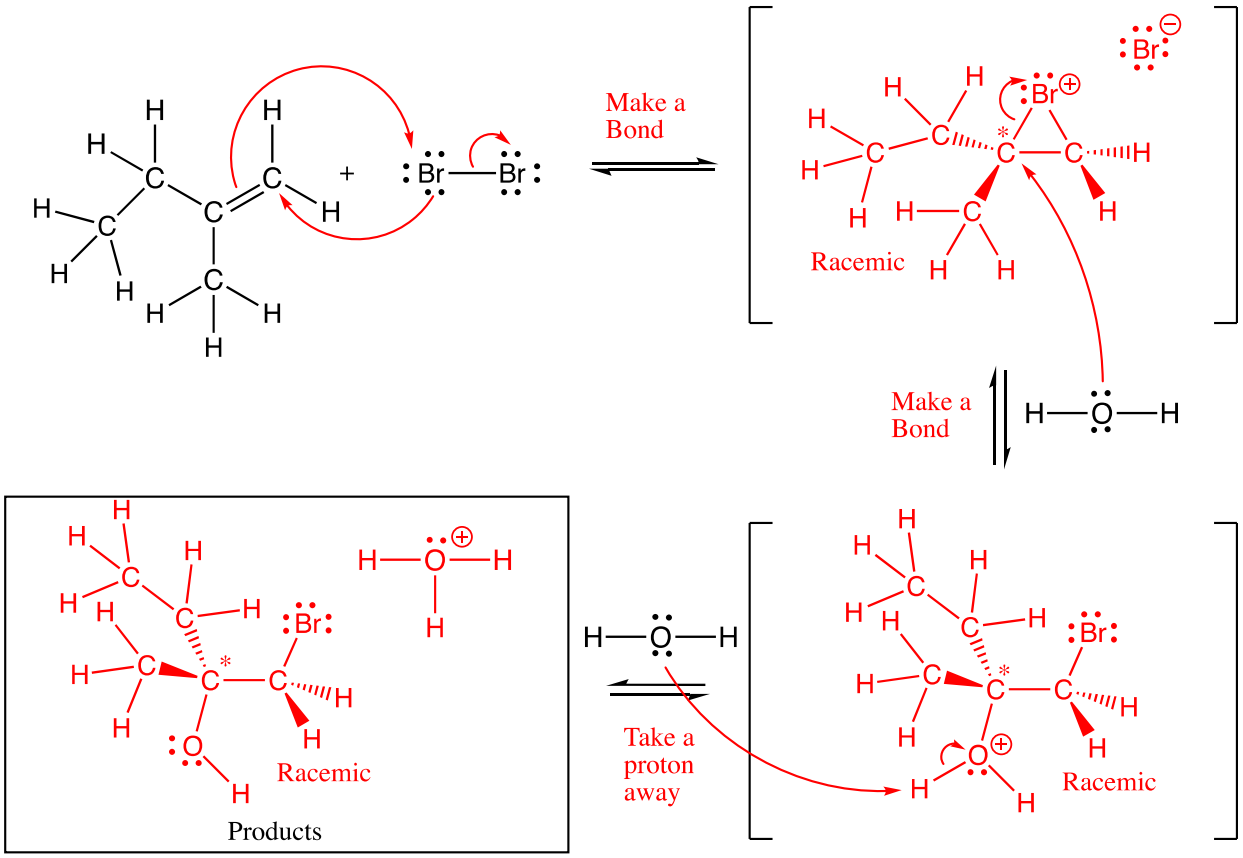






Questions 5 and 6 are mechanism questions and worth a combined total of 35 points.

5. Draw the complete reaction mechanism for the halohydrin formation from the reaction of the following alkene with Br_2 and H_2O, as shown below. Use arrows to indicate the movement of all electrons, and be sure to write all lone pairs, all formal charges, and all the products for each step of the mechanism. Remember, I said all the products for each step! You only need to draw one stereoisomer of a chiral intermediate or product (using wedges or dashes as appropriate). If a new chiral center is created in an intermediate or product, mark it with an asterisk and label the molecule as 'racemic', if appropriate.



6. Read these directions carefully. For the reaction shown below, *draw the reaction mechanism for the rearranged product only.* Although non-rearranged product is also formed, we are not interested in that mechanism. Use arrows to indicate the movement of all electrons, and be sure to write all lone pairs, all formal charges, and all the products for each step of the mechanism. Remember, I said all the products for each step! You only need to draw one stereoisomer of a chiral intermediate or product (using wedges or dashes as appropriate). If a new chiral center is created in an intermediate or product, mark it with an asterisk and label the molecule as 'racemic', if appropriate.