Homework Week 8

Concepts--Chapter 7: Alkyl halide nomenclature, polarity, boiling points, bond strength, Hammond postulate, Alkane halogenation (radical chain mechanism), allylic bromination, Grignard reagents

Skills: Predict relative polarity, boiling points of alkyl halides
Name alkyl halides
Estimate thermodynamic favorability of a reaction using bond strengths
Write radical chain mechanisms
Design syntheses of alkyl halides from alkanes
Predict transition state structures and energies in a reaction
Reactions of Grignard reagents

Monday, April 8
Problems 7.14, 16, 18, 21

Tuesday
Problems 7.22-27

Wednesday
Read Chapter 8 through section 8.4E
Problems 7.28-31
Homework to turn in on Friday, April 12

Friday, April 12
Read Chapter 8 through section 8.8
Problems 8.10-14, 16-20
The following problems should be turned in on Friday as part of your weekly quiz. Please write your answer on a separate sheet of paper and turn it in with your quiz. This problem should be completed individually.

Alkenes can undergo addition of HBr under conditions that promote radical formation, to afford ANTI-MARKOVNIKOV products.

1. Write a detailed radical chain mechanism including initiation, propagation, and termination steps, to account for the observed product of the following reaction. Verify that your propagation steps "add up" to the overall net transformation.

2. Calculate the ΔH° for each of the propagation steps in your mechanism.

3. Why is the anti-Markovnikov addition product formed under these conditions?