Exam review times? Turn to partner, alfredo or tomato sauce?

1. **RADICALS W/ ALKENES**

   ![Reaction Scheme](image)

   NBS $\equiv$ Br

   $\rightarrow$ **EXAMPLE: MULTIPLE PRODUCTS**

   $\rightarrow$ **WHY CAN'T Br$_2$ BE USED (BROMINATION CONFLICTS)**

   **Initiation**

   ![Initiation Scheme](image)

   ![Propagation Scheme](image)

   **Propagation**

10.7 **PREDICTING THE PRODUCTS OF ALLYLIC BROMINATION**

**STEP 1** Identify the allylic position.

**STEP 2** Remove a hydrogen atom and draw resonance structures.

**STEP 3** Place a bromine at each location that bears an unpaired electron.

10.16 Predict the products when each of the following compounds is treated with NBS and irradiated with UV light:

(b) ![Allylic Positions](image)

(c) ![Allylic Positions](image)

(d) ![Allylic Positions](image)
10.8 PREDICTING THE PRODUCTS FOR RADICAL ADDITION OF HBr

STEP 1 Identify the two groups being added across the double bond.

HBr

STEP 2 Identify the expected regioselectivity.

ROOR

STEP 3 Identify the expected stereospecificity.

Br is installed here at the less substituted position

10.21 Predict the products for each reaction. In each case, be sure to consider whether a chiral center is being generated, and then draw all expected stereoisomers.

HBr

ROOR

(no chiral centers)

ALKynes ↔ OTHER RXNS

H—Br

H—Br

H—Br

DIFF B/W REARRANGEMENTS RADICAL (RES) + CARBOCAT (SHIFTS)
**3 Reaction Review**

**Prep for Wed - Worksheet**

**Bromination of Alkanes**

**Anti-Markovnikov Addition of HBr to Alkenes**

**Allylic Bromination**

1. Elimination
2. Hydrohalogenation (two equivalents)
3. Hydrohalogenation (one equivalent)
4. Acid-catalyzed hydration
5. Hydroboration-oxidation
6. Halogenation (one equivalent)
7. Halogenation (two equivalents)
8. Ozonolysis
9. Allylation
10. Dissolving metal reduction
11. Hydrogenation
12. Hydrogenation with a poisoned catalyst

**Additional Chemical Reactions**

1. Hydrohalogenation (Markovnikov)
2. Hydrohalogenation (anti-Markovnikov)
3. Acid-catalyzed hydration and oxymercuration-demercuration
4. Hydroboration-oxidation
5. Hydrogenation
6. Bromination
7. Haloxydrin formation
8. Anti-dihydroxylation
9. Syn dihydroxylation
10. Ozonolysis
Synthetically Useful Transformations

Primary Substrates

Tertiary Substrates

S_N2 Reactions

E2 Reactions

S_N1 and E1 Reactions