

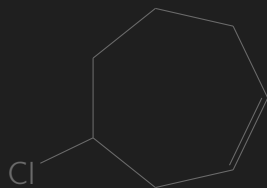
# Mini Quizzes

Week 1 — Chapter 14

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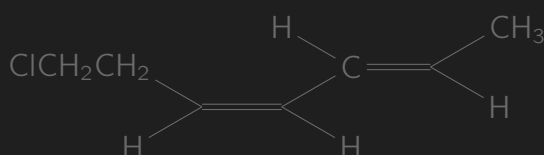
## Week 1 – Chapter 14

1. Name the structure:



- 1-chloro-3-cycloheptene
- 4-chloro-1-cycloheptene
- 4-chloro-1-cyclohexene
- 6-chloro-1-cycloheptene
- When numbering the parent chain, the double bond should receive the lowest number possible; **k=1**
  - Note: define the location *k* of the double bond as being the number of its first carbon, not at the end.
- The locant (*k*) of the double bond should be placed right before the suffix of “ene,” though, it was previously recommended before the parent (both are acceptable), e.g., 2-pentene = pent-2-ene; **1-cycloheptene**
- Name and the side groups (other than hydrogen) according to the appropriate rules; **chloro**
- Define the position of each side group as the number of the chain carbon it is attached to; **4-**

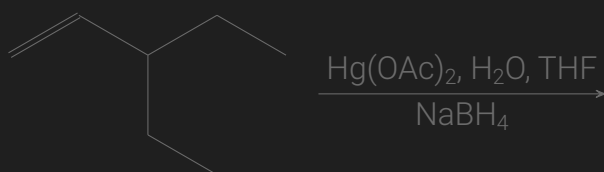
2. Name the structure:



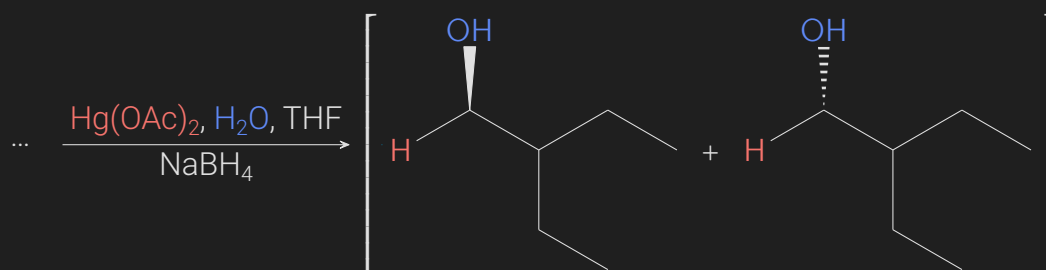
- (2E,4E)-7-chloro-2,4-heptadiene
- (2Z,4Z)-7-chloro-2,4-heptadiene
- (2Z,4E)-7-chloro-2,4-heptadiene
- (2E,4Z)-7-chloro-2,4-heptadiene
- **E-Z notation:** recommended instead of *cis* and *trans* in order to account for cases that has more than two different groups attached to the double bond by first determining the priority using the Cahn-Ingold-Prelog System.

- E, entgegen, "opposite".
- Z, zusammen, "together"; "on ze zame zide."
- When numbering the parent chain, the double bond should receive the lowest number possible;  $k=2$
- The two highest priority groups are on opposite sides; 2E
- There is more than one double bond;  $k_2 = 4$
- The two highest priority groups are on same side; 4Z

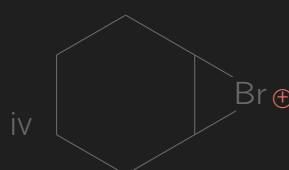
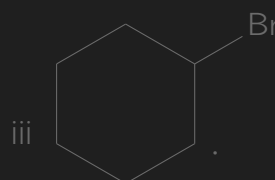
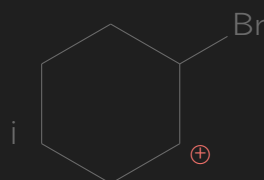
3. How many stereoisomeric product(s) do you get in the reaction below.



- Oxymercuration-demercuration reactions follow Markovnikov's rule, i.e.,  $\text{H}^+$  is added to the carbon with the greatest number of hydrogen atoms while the  $\text{X}^-$  component is added to the carbon with the fewest hydrogen atoms.
- Drawing the intermediate is not necessary, and no chiral centers are found in the products:



4. Which reaction intermediate is formed when  $\text{Br}_2/\text{CCl}_4$  reacts with cyclohexene?





- **Halogenation:** a reaction that involves the addition of one or more halogens to a compound or material.
  - The addition of halogens to alkenes proceeds via **intermediate halonium ions**.
  - **Halonium ion:** any onium ion containing a halogen atom carrying a positive charge. This cation has the general structure:  $R - +X - R'$
  - **Onium ion:** a **cation** formally obtained by the protonation of mononuclear parent hydride of a pnictogen (group 15 of the periodic table), chalcogen (group 16), or halogen (group 17);  $Br^+$  in our case.