**Short answer.**

ALL calculations with proper units are required for full credit

Identify the limiting reagent for the following E2 reaction and calculate the % yield if 3.1 mL of cyclohexene was isolated from the reaction of 4 mL of cyclohexyl bromide and 5 g of sodium hydroxide:



Predict the products of the following reactions and identify the major products:



**True/False.**

1. \_\_\_\_\_\_ In an E2 reaction, the leaving group and adjacent hydrogen must be *anti* to each other.
2. \_\_\_\_\_\_ The product of the E2 elimination of cyclohexyl bromide is less dense than water.
3. \_\_\_\_\_\_ An E2 reaction requires a good leaving group like an alcohol.
4. \_\_\_\_\_\_ Bromocyclohexane and cyclohexene cannot be separated by simple distillation.
5. \_\_\_\_\_\_ Sodium hydroxide is a catalyst in the E2 reaction of cyclohexyl bromide
6. \_\_\_\_\_\_ Acidic workup is required for E2 reactions.
7. \_\_\_\_\_\_ Secondary alkyl halides can undergo both E1 and E2 reactions.
8. \_\_\_\_\_\_ Sodium bicarbonate would be an appropriate base for an E2 reaction.
9. \_\_\_\_\_\_ The concentration of sodium hydroxide affects the rate of an E2 reaction.
10. \_\_\_\_\_\_ Potassium hydroxide is most considered a corrosive hazard.

**Multiple Choice**

1. Which proton will be removed in the E2 elimination of cyclohexyl bromide?

a) Ha

b) Hb

c) HC

d) None of the above



1. If the product of the E2 elimination of bromocyclohexane gave a green flame in a Beilstein test, which is most likely?

a) The reaction has gone to completion

b) The reaction has not gone to completion

c) The product is wet

d) The product is acidic

1. For E2 elimination to occur on cyclohexane, both the leaving group and the proton must be in which position?

a) Equitorial

b) Syn

c) Axial

d) Elimination reactions cannot be performed on ring structures.

1. Which of the following substrates would be most favored for an E2 reaction?



1. Which of the following would help favor the E2 product over the SN2 product?

a) Using a sterically hindered starting material

b) Using a 3° alkyl halide

c) Reducing the concentration of the base.

d) Using a base that is a poor nucleophile.