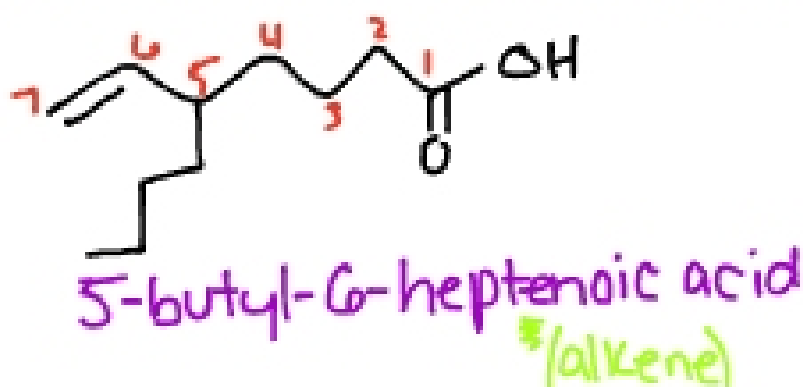
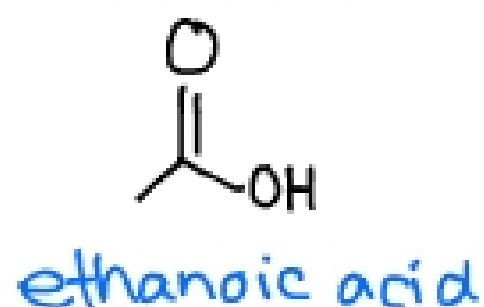


Chapter 19

I. Naming and Structure of Carboxylic Acids

1. Naming (19-1)

A. "Carboxylic acid" trumps other functional groups for naming

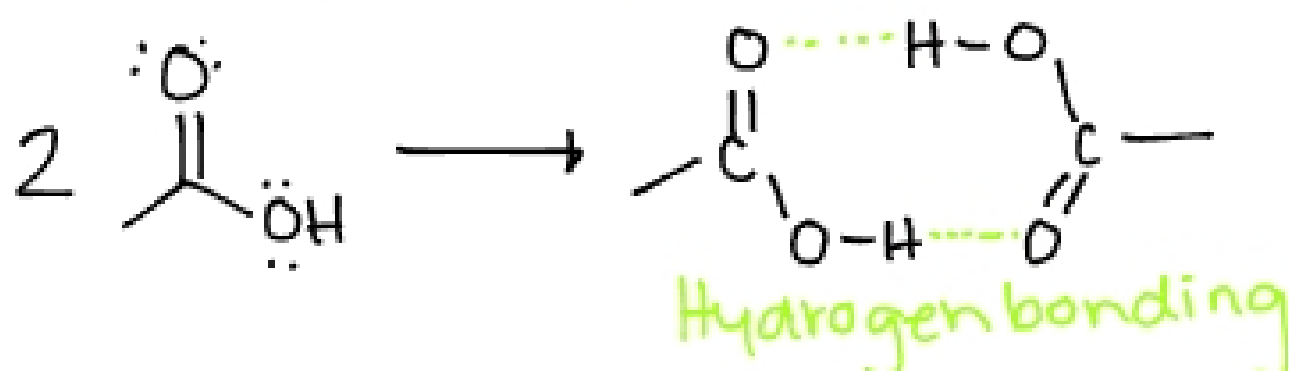


2. Structure (19-2)

A. C=O is relatively planar, -OH is sp³

B. Water soluble

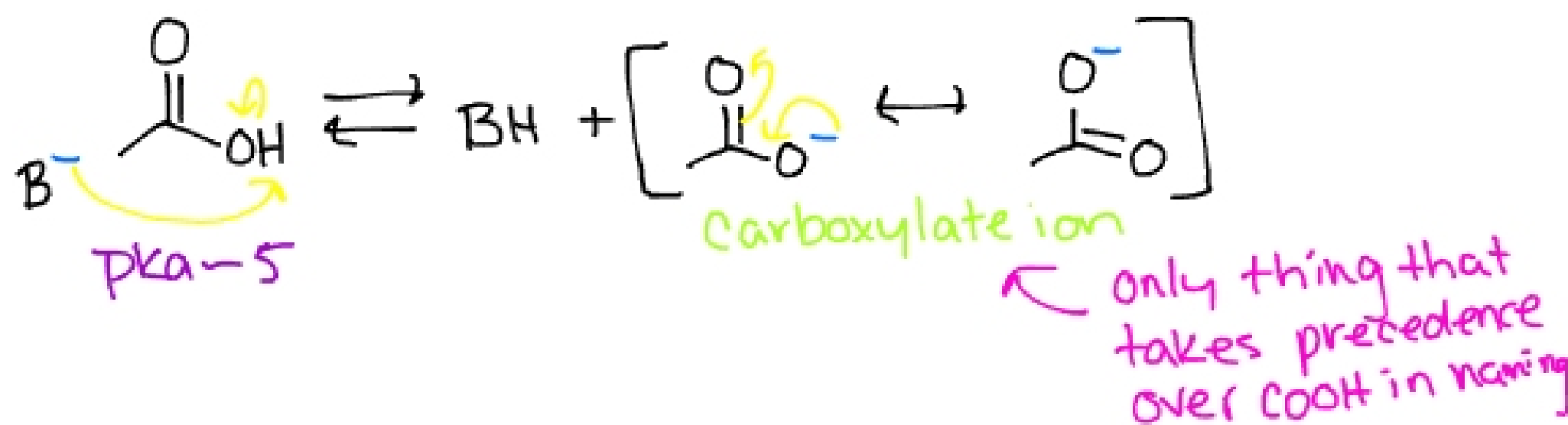
C. Hydrogen bonding/Dimerization



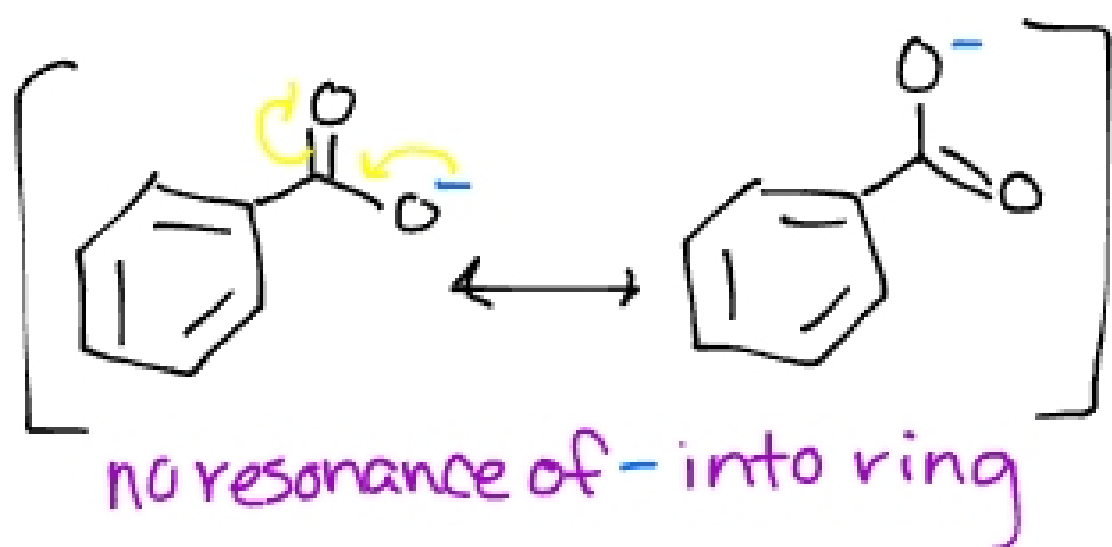
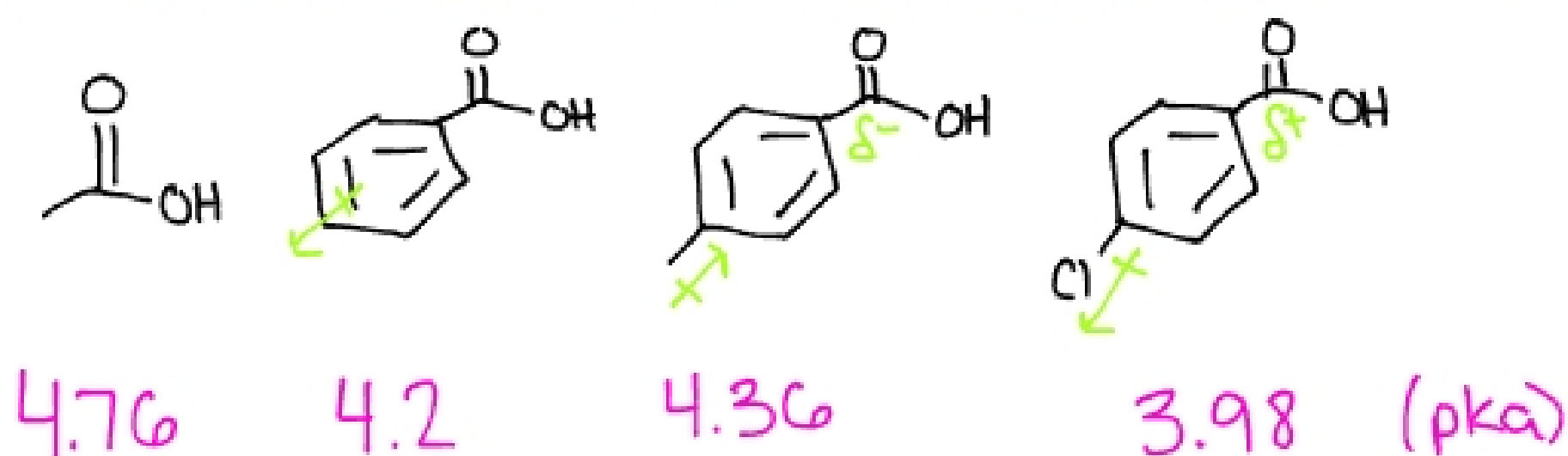
II. Acidity and Basicity (19-4)

1. Acidity of -OH

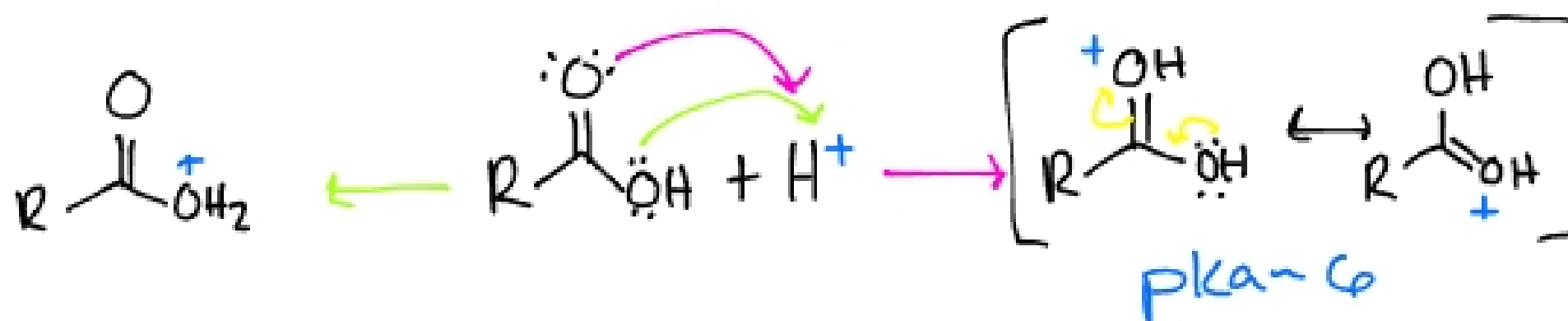
A. Resonance stabilization of conjugate base



B. Increased acidity with presence of EWG (e- withdrawing groups)

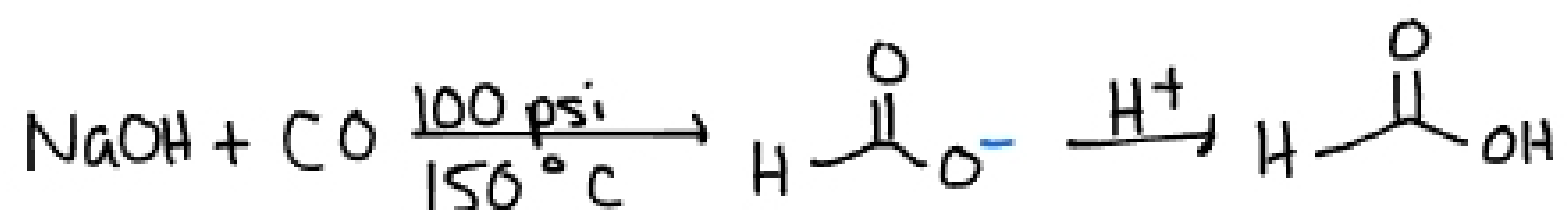


2. Protonation of Carboxylic Acid

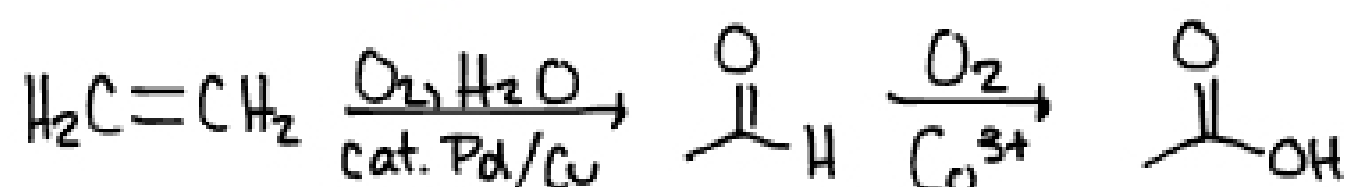


III. Industrial Synthesis of Carboxylic Acids (19-5)

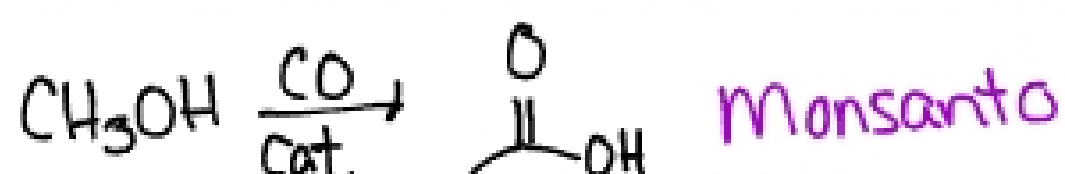
1. Formic acid synthesis



2. Acetic acid synthesis via ethene oxidation



3. Acetic acid synthesis via carbonylation

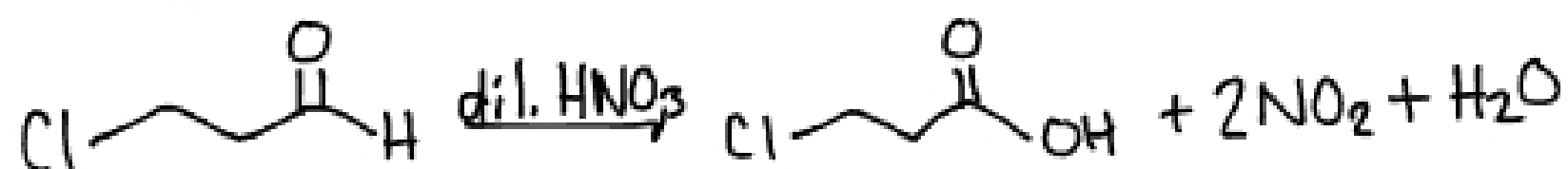


IV. Synthesis of COOHs (19-6)

1. Oxidation of primary alcohols and aldehydes

A. CrO₃/KMnO₄

B. Dilute HNO₃



2. Addition of organometallics to CO₂(s) ← dry ice

