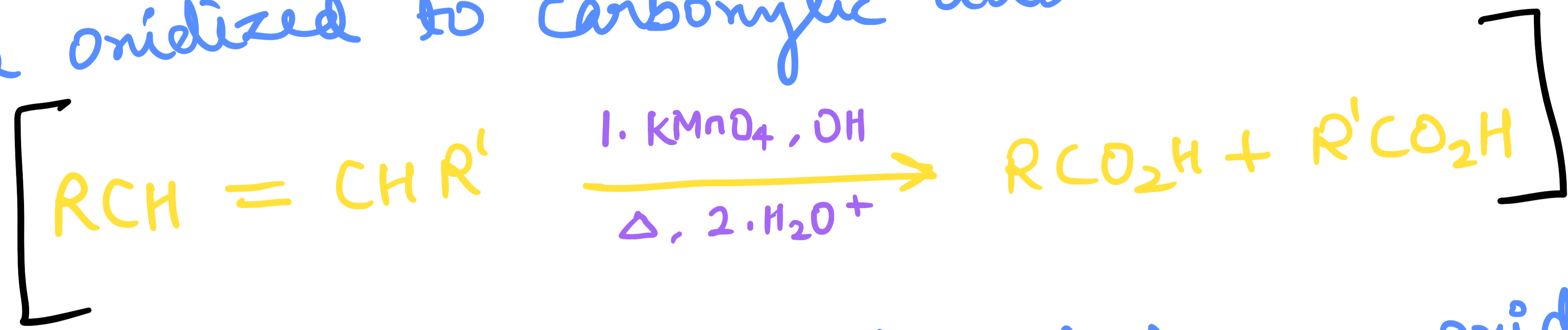


Carboxylic Acids And Its Derivatives

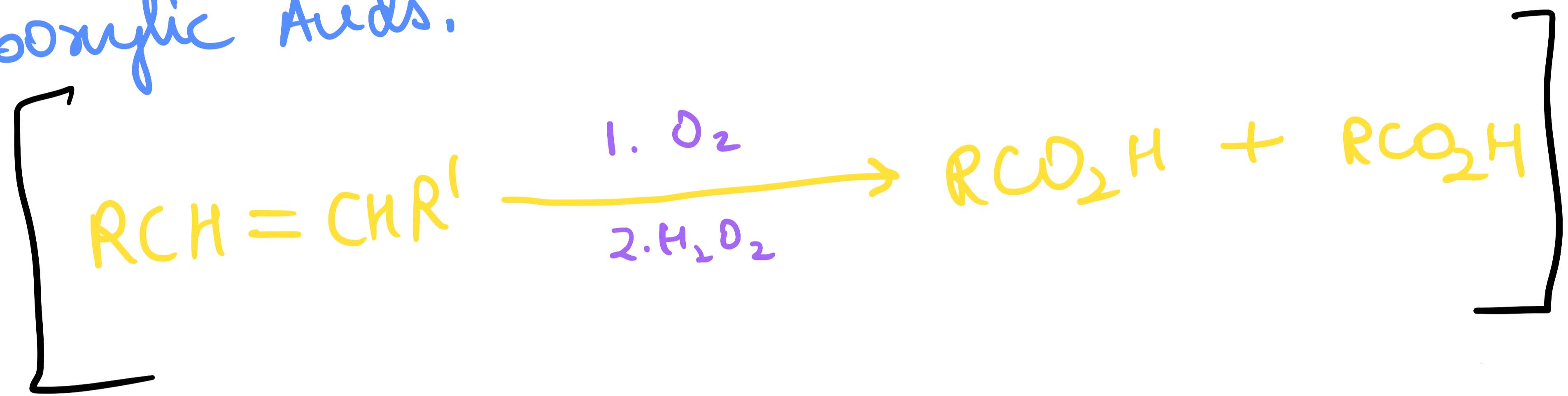
Preparation:

By oxidation of alkenes:

Alkenes can be oxidized to carboxylic acids with hot Alkaline KMnO_4



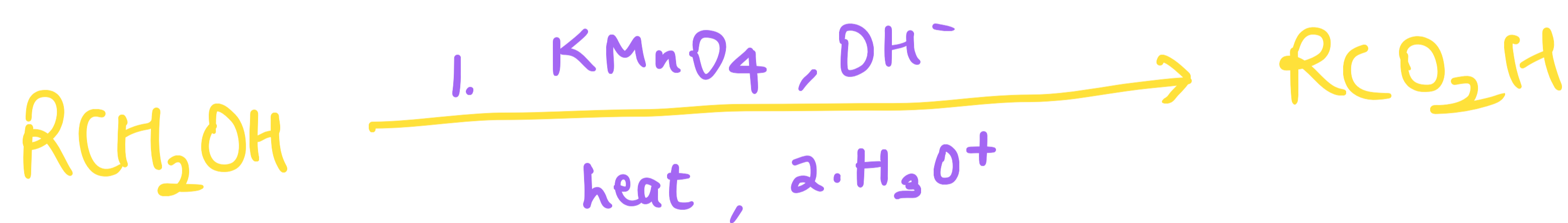
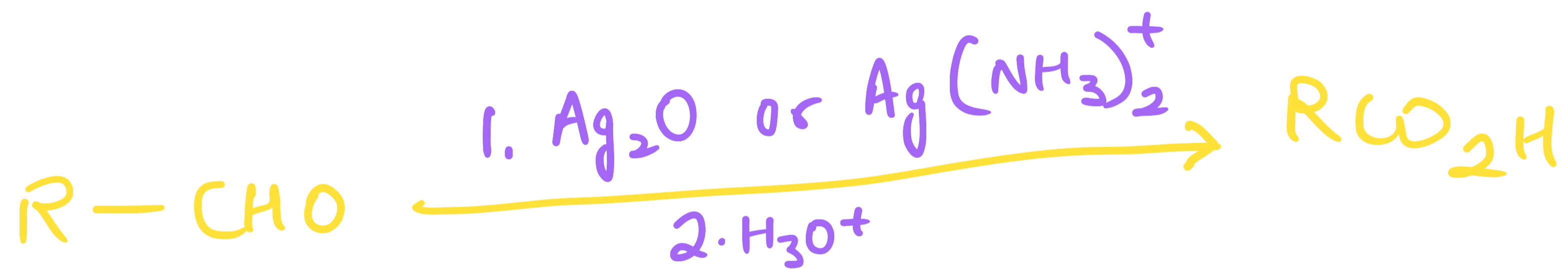
Alternatively, ozonides can be subjected to an oxidative workup that yields carboxylic acids.



By Oxidation of Aldehydes and Primary Alcohols:

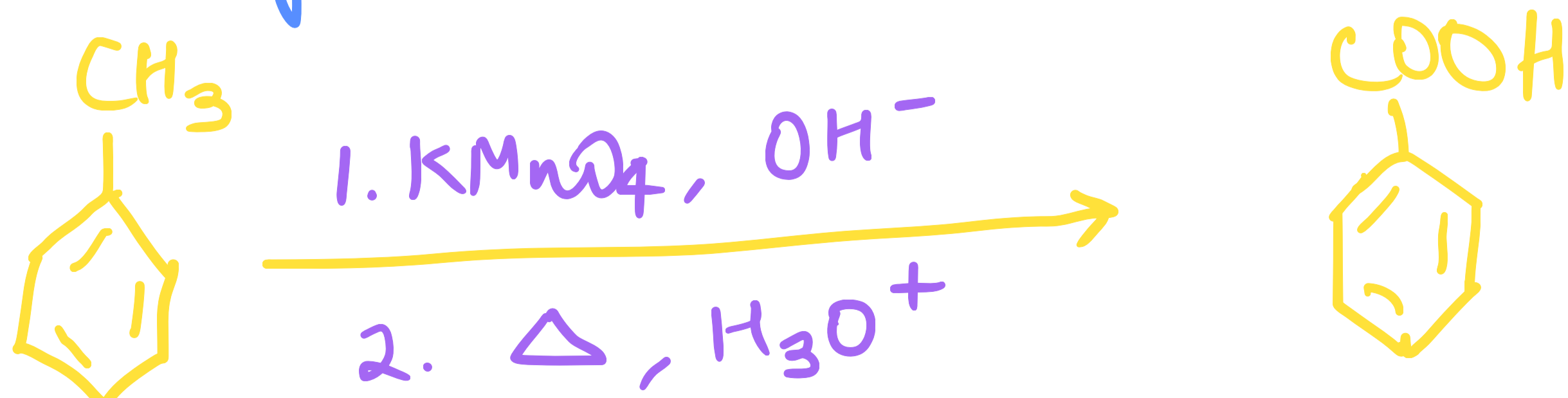
Aldehydes can be oxidized to carboxylic acids with mild oxidising agents, such as $\text{Ag}(\text{NH}_3)_2^+ \text{OH}^-$.

Primary Alcohols can be oxidized with KMnO_4 .



By Oxidation of Alkylbenzenes:

Primary and secondary alkyl groups (but not 3° groups) directly attached to a benzene ring are oxidized by KMnO_4 to a $-\text{CO}_2\text{H}$ group.



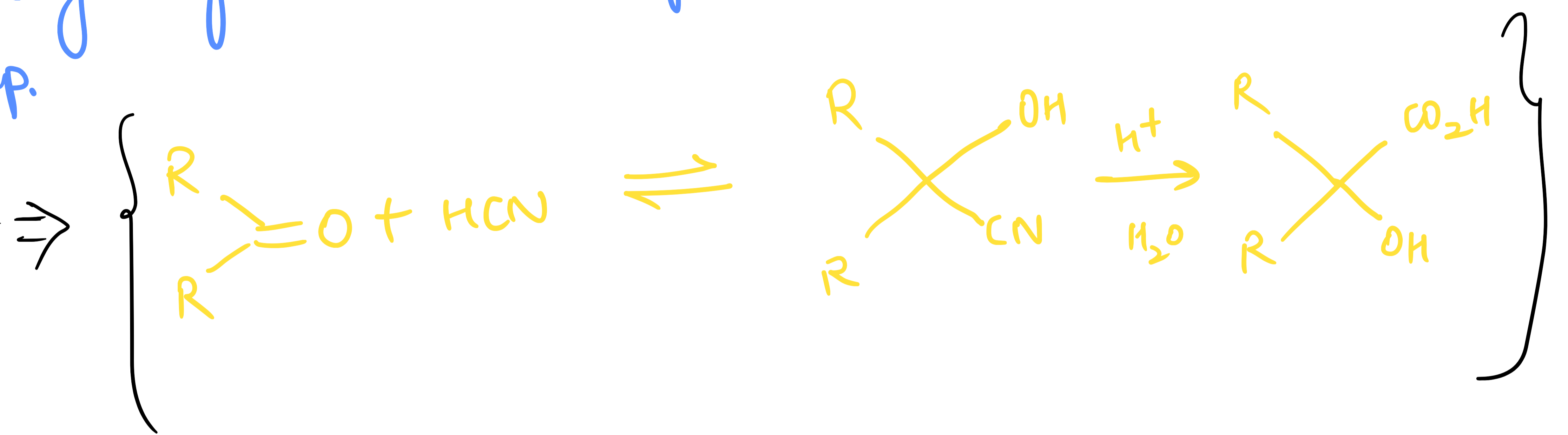
By Oxidation of Methyl Ketones:

Methyl ketones can be converted to carboxylic acids via the haloform reaction.



By Hydrolysis of Cyanohydrins & other Nitriles:

Aldehydes and ketones can be converted to cyanohydrins, and these can be hydrolyzed to α -hydroxy acids. In the hydrolysis, the $-\text{CN}$ group is converted to a $-\text{CO}_2\text{H}$ group.



By Carboxylation of Grignard Reagents:

Grignard reagents react with carbon dioxide to yield magnesium carboxylates. Acidification produces carboxylic acids:

