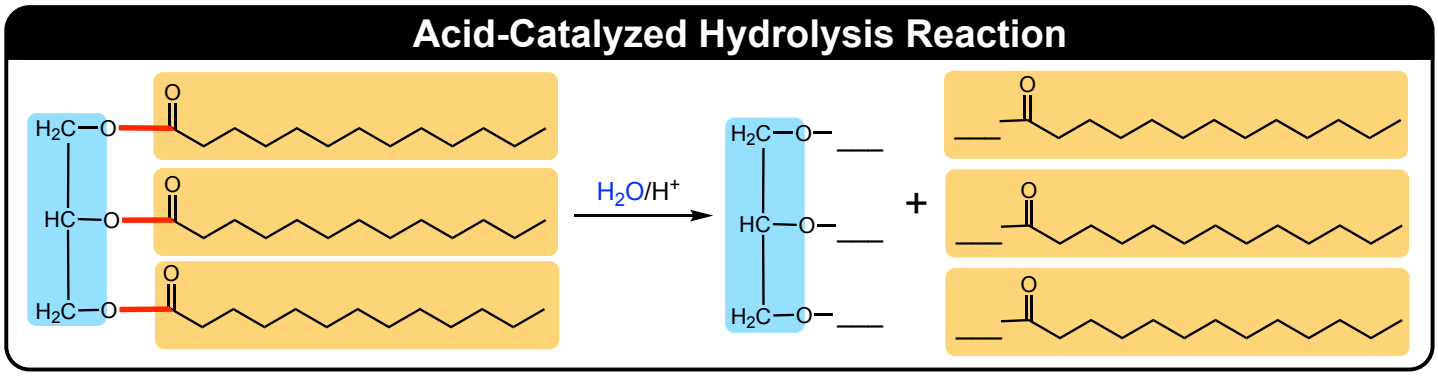
CONCEPT: TRIACYLGLYCEROL REACTIONS: HYDROLYSIS

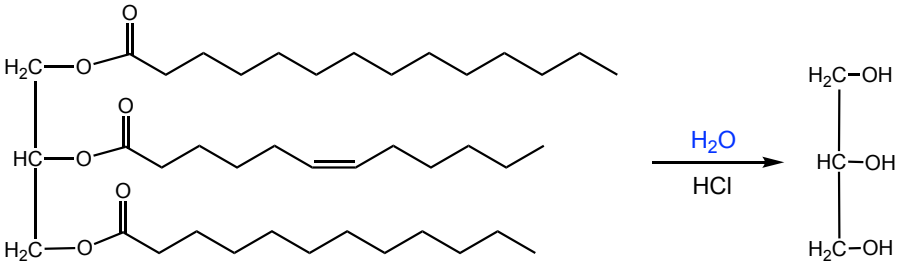
Acid-Catalyzed Hydrolysis

- Under this type of reaction, ester bond is hydrolyzed to create a _____ and ____ fatty acids.
  - □ Occurs stepwise in the presence of a strong acid (_____ or _____).

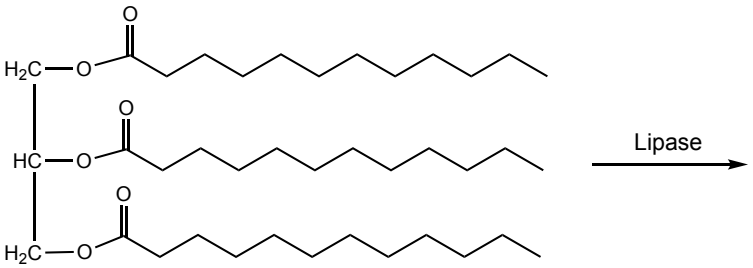


- **Enzymatic Hydrolysis:** a similar reaction done under milder conditions that instead uses the digestive enzyme _____.

EXAMPLE: Draw the fatty acid products for the following reaction.



PRACTICE: Provide the common name of the fatty acids produced from the enzymatic hydrolysis of the following triacylglycerol.



a) Palmitoleic acid b) Lauric acid c) Palmitic acid d) Myristic acid

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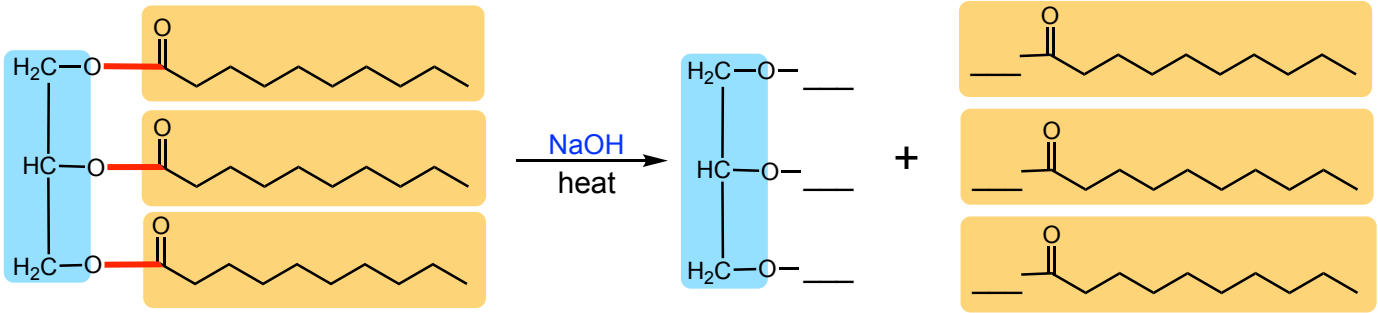
Saponification

- Under this reaction the _____ ion cleaves the ester bond to create _____ of the fatty acids and _____.

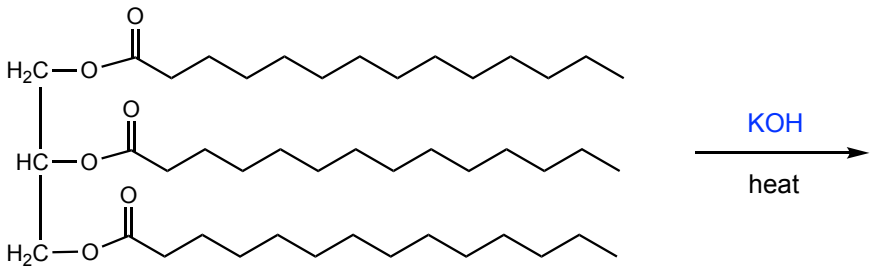
Saponification Reaction



- The salts of the fatty acids are used in the creation of soaps.
  - □ When NaOH used = _____ soap created.
  - □ When KOH used = _____ soap created.

EXAMPLE: Draw the starting triacylglycerol used when its complete basic hydrolysis created 2 laurate salts, 1 palmitate salt, and a glycerol molecule.

PRACTICE: The salt of a fatty acid has its ending of "ic acid" changed to "ate". Based on this information provide the name of the salt created from the following saponification reaction.



a) Potassium Laurate

b) Sodium Oleate

c) Potassium Myristate

d) Potassium Lactate