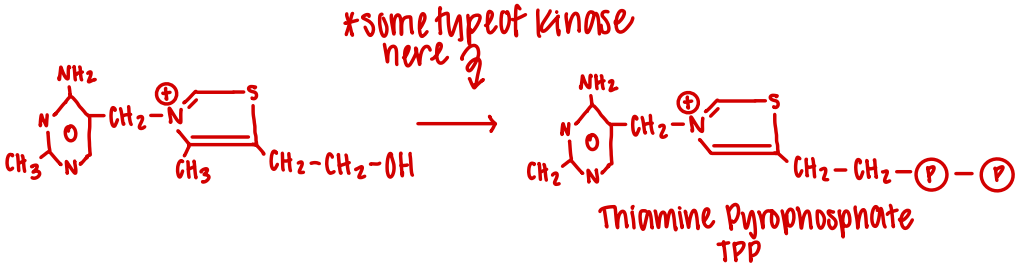
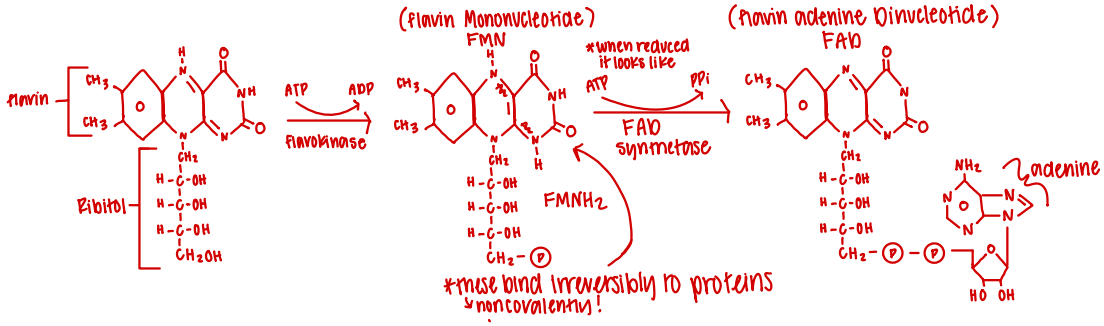
Draw your vitamins here!! (From the board)

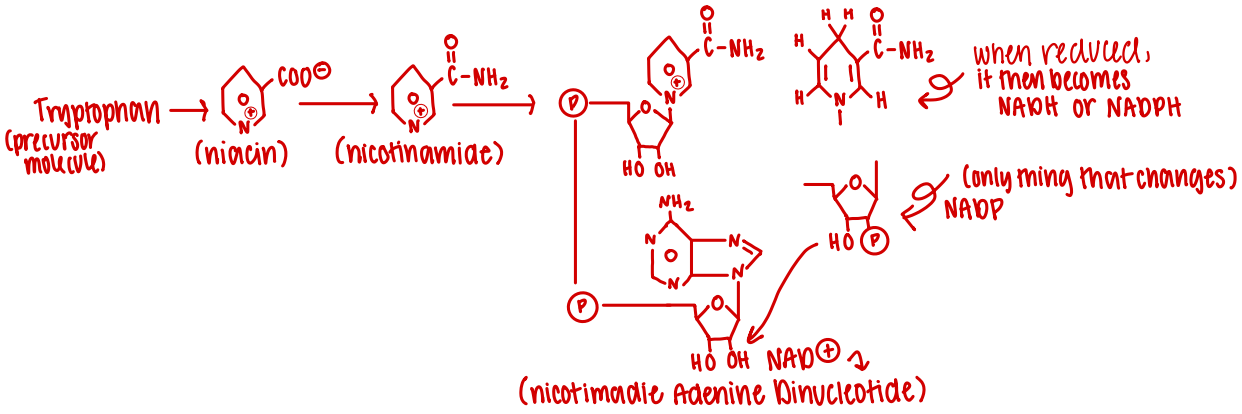
- Thiamine (B1)



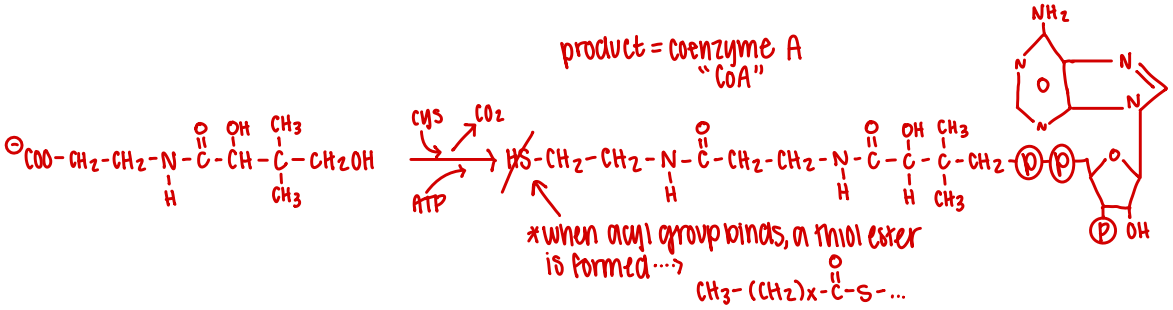
- Riboflavin (B2)



- Niacin (B3)



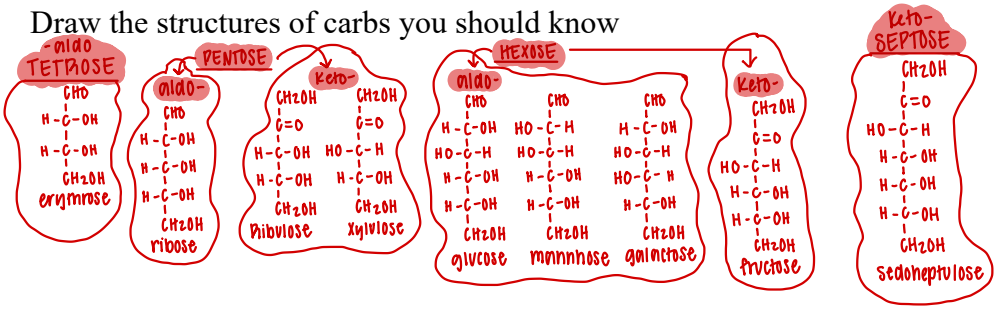
- Pantothenic acid (B5)



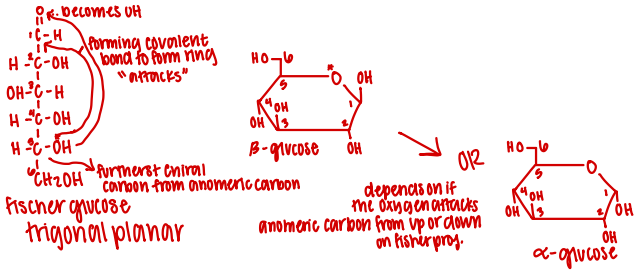
SI Session 19
11/17

- What is the anomeric carbon?

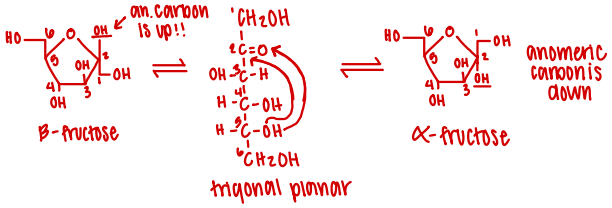
- Draw the structures of carbs you should know



- Draw the Fisher and Haworth projection of glucose

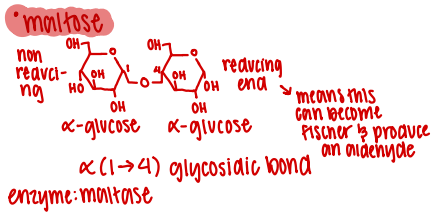


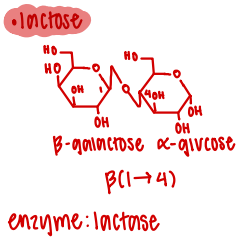
- Draw the Fisher and Haworth projection of Fuctose

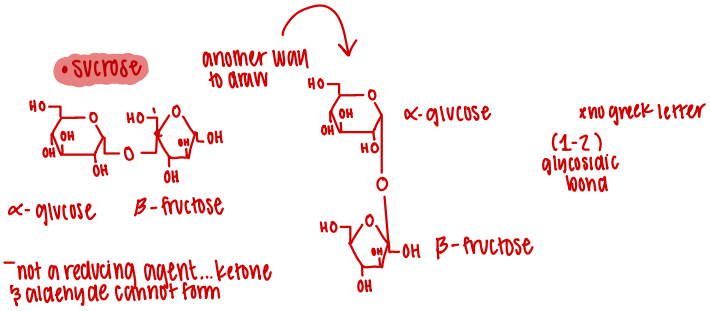


- In alkali (basic) conditions, aldehyde and ketones can act as a reducing agent.

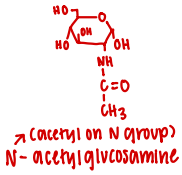
- Draw the disaccharides you need to know



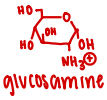




- Draw N-acetylglucosamine



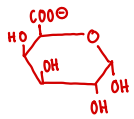
- Draw glucosamine



- Draw fructose 6-phosphate

- Draw galactouronic acid

uronic acid: means $COO^{\ominus}$ on the furthest carbon from anomeric carbon

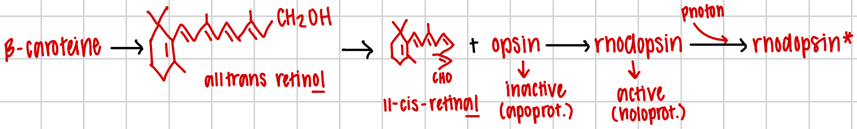


galactouronic acid
or
called galactouronate

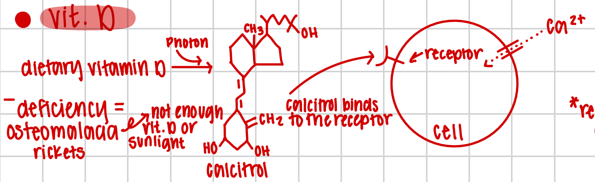
to draw:

- **Vit. A / retinal / retinol**
  - absorbing light
  - def: night blindness
  - carrots, tomatoes, etc.

*photo excited rhodopsin... ↳ is now all trans retinal!

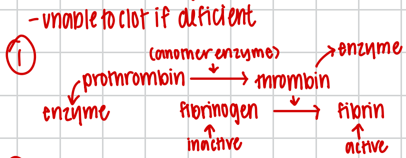


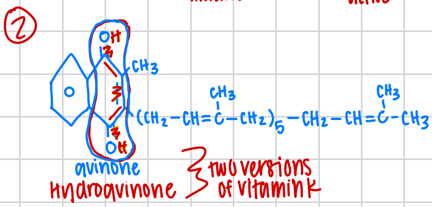
- **vit. D**

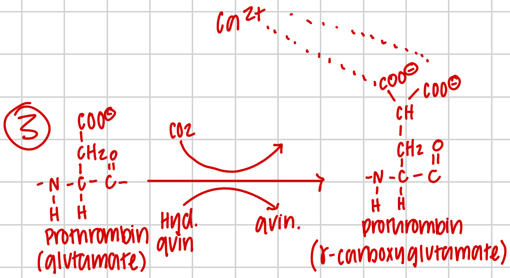


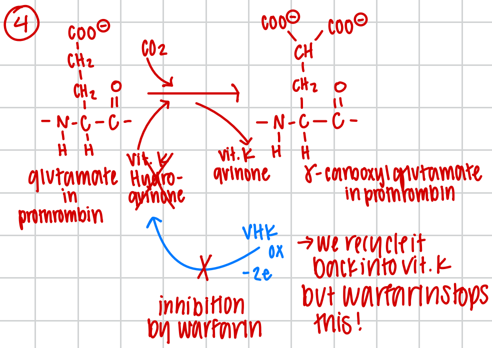
*receptor tells cell to create Ca^{2+} channel so that calcium enters the cell → needed for muscle contraction

- **vit. K**
  - clot formation
  - bacteria in our gut
  - unable to clot if deficient

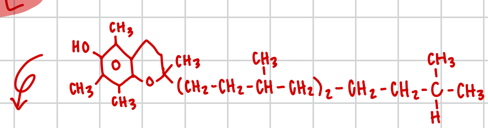








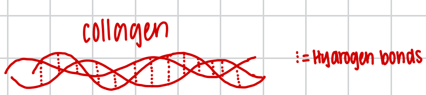
- **vit. E**



α-tocopherol: anti-oxidant for membranes

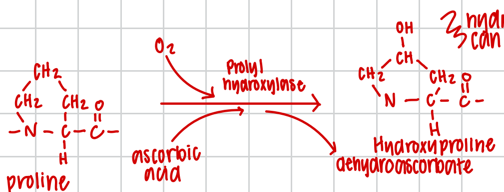
- **ascorbic acid / ascorbate**
  - CT formation + collagen
  - scurvy: CT loses its function

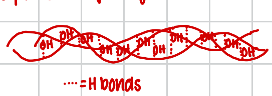
collagen

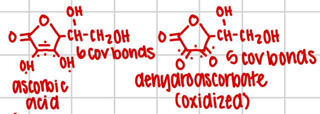


must perform post-translational modification to proline!

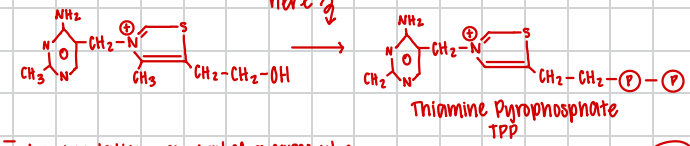
↳ hydrogen donor, therefore can now participate in hydrogen bonds







Thiamine

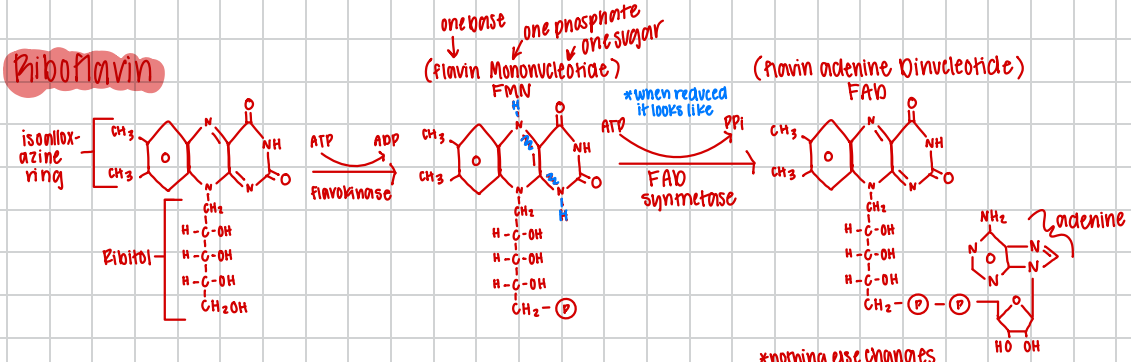


- decarboxylation: removal of a carboxyl group
  - decarboxylases need TPP for activity. (they bind to each other)
    - required for energy production & metabolism

} really important in aerobic respiration

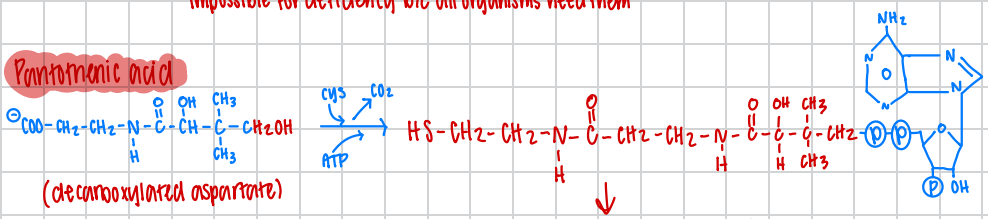
- B_1 deficiency: Beri-Beri
  - ≠ wernicke's encephalopathy

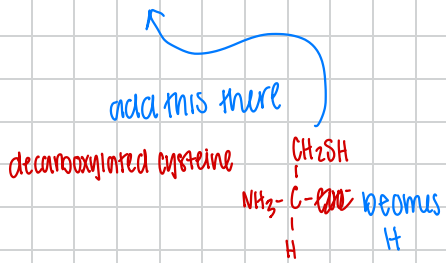
Riboflavin



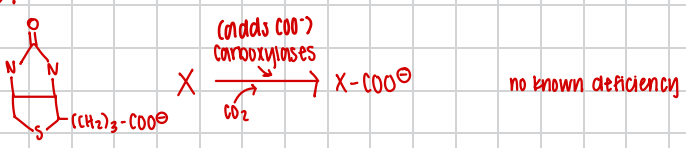
- impossible for deficiency b/c all organisms need them

Pantothenic acid





Biotin B7



no known deficiency

- carboxylase requires biotin

covalently linked to carboxyl groups as a prosthetic group