Discussion Exercise 4: Six classes of enzymes

Skill 1: Predict the class of an enzyme based on its name

Problem 1: To which EC class do each of the following enzymes belong?
   A. Hexokinase TRANSFERASE
   B. Glucose-6-phosphate isomerase ISOMERASE
   C. Glyceraldehyde-3-phosphate dehydrogenase OXIDOREDUCTASE
   D. phosphoglycerate mutase ISOMERASE

Skill 2: Predict the enzyme class given a chemical reaction

Problem 2: An enzyme from which class will catalyze the following reactions?

\[ \text{oxidoreductase} \quad \text{transferase} \quad \text{hydrolase} \]
Skill 3: Predict the name of an enzyme based on a reaction

Problem 3: Match the following enzyme names with the appropriate reaction of the urea cycle: Arginase, argininosuccinate lyase, argininosuccinate synthetase, ornithine transcarbamoylase.

1. ornithine transcarbamoylase (notice the transfer of $\text{CONH}_2$ from phosphate to ornithine)
2. argininosuccinate synthetase (notice the use of ATP)
3. argininosuccinate lyase (notice that arginine is lost with formation of a $\text{C=CC}$)
4. Arginase (notice that this is a hydrolysis—incorporation of water)