

Problem Set 28: Carbohydrate Metabolism and Glycolysis

1. What monosaccharides result from the hydrolysis of lactose by the lactase enzyme?
2. What is the final product from the 10 step process of glycolysis?
3. Consider your answer from #2. How many carbon atoms are in one molecule of this product?
4. Consider your answer from #2. What is the fate of this molecule under aerobic conditions?
5. Refer to slide 3 of Tutorial 28 (or any other source that shows the steps of glycolysis), and answer a-b below.
 - a. Which step(s) involves the reduction of a coenzyme?
 - b. Which step(s) result in the direct synthesis of ATP?
6. Put the following in order of occurrence: Krebs cycle, glycolysis, oxidative phosphorylation, pyruvate oxidation and the electron transport chain.
7. Calculate the number of moles of ATP that form from complete catabolism of 1 mol of glucose. Show the ATP yield from each of the following processes during your calculation: Krebs cycle, glycolysis, oxidative phosphorylation, pyruvate oxidation and the electron transport chain.