Preclass Assignment
CHEM 1100-General Chemistry II

Name: **#6**

Section: 31, TR **Due Date: Thursday 2/6/2020**

1. The acid-catalyzed hydrolysis of sucrose is a first-order reaction:

$$\underset{}{C_{12}H_{22}O_{11}(aq)} + \underset{}{H_2O(l)} \rightarrow \underset{\text{glucose}}{C_6H_{12}O_6(aq)} + \underset{\text{fructose}}{C_6H_{12}O_6(aq)}$$

At 22 °C, the rate constant is 1.6×10^{-4} 1/s. How long, in hours, would it take for the concentration to decrease to 0.010 M if the initial concentration was 0.10 M?

2. The decomposition of hydrogen iodide is a second-order reaction:

$$2HI(g) \rightarrow H_2(g) + I_2(g)$$

The rate constant for this process is 5.13×10^{-4} $\frac{1}{\text{M s}}$ at 410 °C. If the initial concentration of hydrogen iodide is 0.250 M, calculate the new concentration after 2.00 hours.