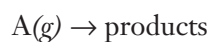


## HALF - LIFE

NAME \_\_\_\_\_

SECTION \_\_\_\_\_

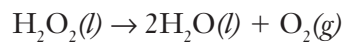
1. a. For the reaction:



when the  $[A]_0 = 0.400 \text{ M}$ , what will the concentration of A be after one half-life?

- b. What additional information would you need to determine the concentration of the products in the reaction after one half-life?
2. Beginning with the general form of the integrated rate law for a reaction that follows simple first order kinetics, derive the mathematical equation for the half-life of the reaction.

3. The decomposition of  $\text{H}_2\text{O}_2$  to  $\text{H}_2\text{O}$  and  $\text{O}_2$  follows first order kinetics with a rate constant of  $0.0410 \text{ min}^{-1}$  at a particular temperature.



How long would it take for half of the  $\text{H}_2\text{O}_2$  to decompose?