

# RATES OF REACTION

NAME \_\_\_\_\_

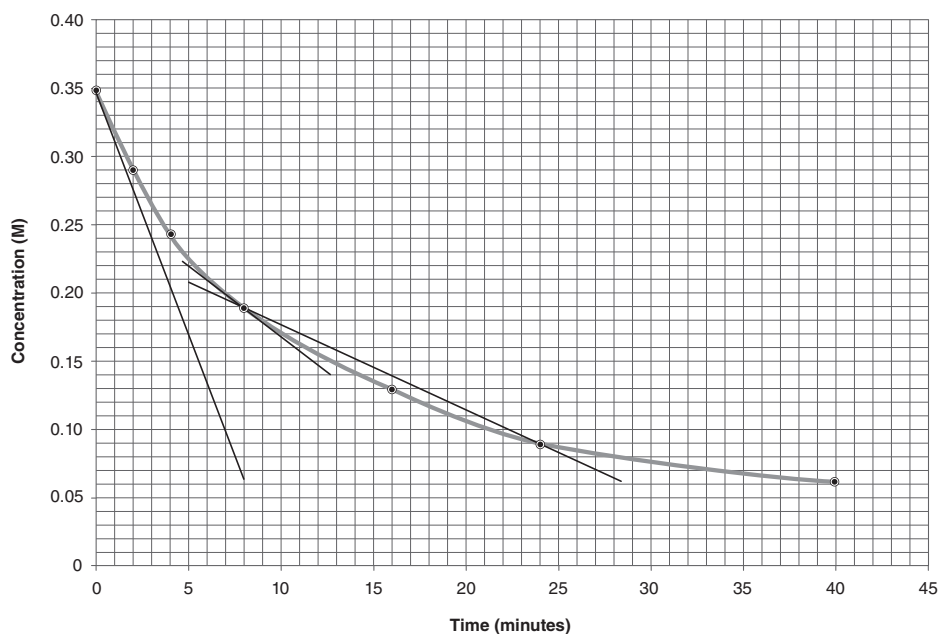
SECTION \_\_\_\_\_

1. a. Given the following data

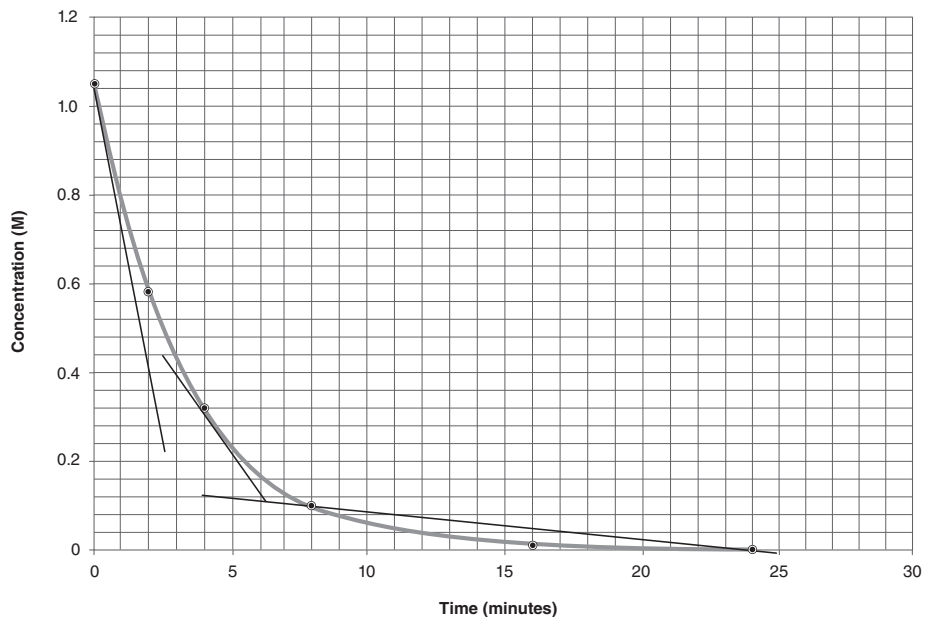
Time (min)	Exp. #1 [NO <sub>2</sub> ] (M)	Exp. #2 [NO <sub>2</sub> ] (M)
0	0.350	1.05
2	0.289	0.583
4	0.245	0.324
8	0.190	0.0999
16	0.130	0.0095
24	0.090	0.0009
40	0.062	

for the reaction  $2\text{NO}_2(g) \rightarrow 2\text{NO}(g) + \text{O}_2(g)$

The data for Exp. #1 is plotted below. Determine the average rate of the reaction between 8 and 24 min., the instantaneous rate of the reaction at 8 minutes, and the initial rate of the reaction.



- b. The data for Exp. #2 is plotted below. Determine the average rate of the reaction between 8 and 24 minutes, the instantaneous rate of the reaction at 8 minutes, and the initial rate of the reaction.



- c. By what factor did the initial concentration change in going from Exp. #1 to Exp. #2?
- d. By what factor did the initial rate change in going from Exp. #1 to Exp. #2?
- e. Write an equation which describes how the initial rate of the reaction depends on the initial concentration.