

Participation Assignment

CHEM 1100-General Chemistry II

Name:

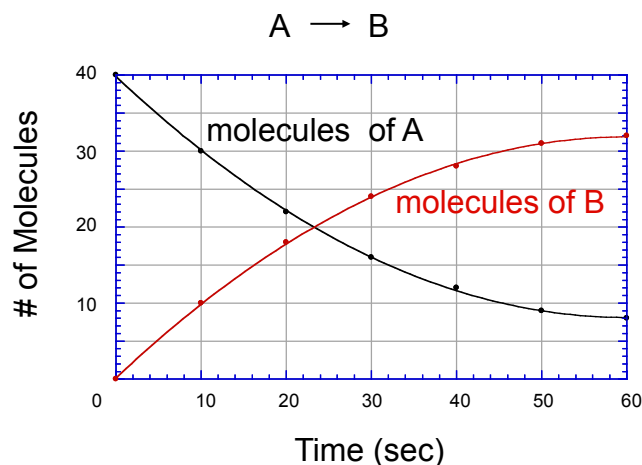
#5

Section: 31, MWF

Due Date: Friday 7/21/2017

Chemical Kinetics

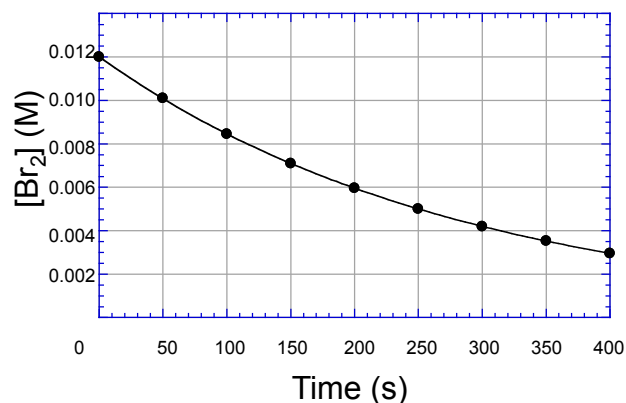
Rate of Reaction



Data: Chang, R., *Chemistry*, 7th ed., The McGraw-Hill Companies, 2002, p511.

Chemical Kinetics

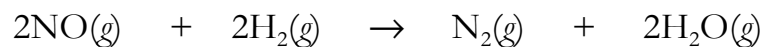
Rate of Reaction



Data: Chang, R., *Chemistry*, 7th ed., The McGraw-Hill Companies, 2002, p513.

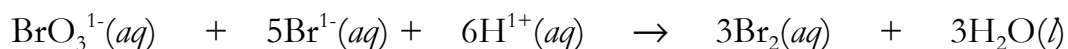
Time (s)	[Br ₂] (M)
0.0	0.0120
50.0	0.0101
100.0	0.00846
150.0	0.00710
200.0	0.00596
250.0	0.00500
300.0	0.00420
350.0	0.00353
400.0	0.00296

1. At 1280 °C, the following data was collected for the reaction between nitrogen monoxide and hydrogen gases. Determine the rate law and calculate the rate constant:



Trial	Initial [NO]	Initial [H ₂]	Initial Rate M/s
1	5.0 x 10 ⁻³	2.0 x 10 ⁻³	1.3 x 10 ⁻⁵
2	1.00 x 10 ⁻²	2.0 x 10 ⁻³	5.2 x 10 ⁻⁵
3	1.00 x 10 ⁻²	4.0 x 10 ⁻³	1.04 x 10 ⁻⁴

2. At room temperature, the following data was collected. Determine the rate law and calculate the rate constant:



Trial	Initial [BrO ₃ ¹⁻]	Initial [Br ¹⁻]	Initial [H ¹⁺]	Initial Rate (M/s)
1	0.15	0.15	0.35	0.022
2	0.15	0.15	0.15	0.0040
3	0.15	0.20	0.15	0.0054
4	0.25	0.25	0.25	0.031