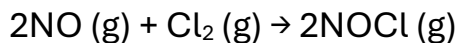
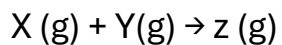


1. Write the rate law expression Using the following reaction and data table. What is the overall reaction order? What is the value of the rate constant?



| $[\text{NO}]_0$ | $[\text{Cl}_2]_0$ | Initial rate (M/sec) |
|-----------------|-------------------|----------------------|
| 0.1 | 0.1 | 0.18 |
| 0.1 | 0.2 | 0.36 |
| 0.2 | 0.2 | 1.45 |

2. Write the rate law expression Using the following reaction and data table. What is the overall reaction order? What is the value of the rate constant?



| $[\text{X}]_0 \text{ M}$ | $[\text{Y}]_0 \text{ M}$ | Initial rate (M/sec) |
|--------------------------|--------------------------|----------------------|
| 0.1 | 0.5 | 0.053 |
| 0.2 | 0.3 | 0.127 |
| 0.4 | 0.6 | 1.02 |
| 0.2 | 0.6 | 0.254 |