1.5 Isobutylene decomposed to its products and the following data were obtained.

C_A/mol/L	1.00	0.943	0.892	0.805	0.733	0.579	0.407
$-r_A$/(mol/L•s)	2.02×10^{-4}	1.80×10^{-4}	1.61×10^{-4}	1.31×10^{-4}	1.09×10^{-4}	6.77×10^{-5}	3.35×10^{-5}

- Estimate the overall order of the reaction.

- For a chemical reaction that is *n*th order, a plot of $\ln(-r_A)$ versus $\ln(C_A)$ yields a straight line (Equation 1.25).
- $-r_A = kC_A^{\alpha}$

$\ln(-r_A)$	-8.85	-8.62	-8.74	-8.94	-9.13	-9.6	-10.30
$\ln(C_A)$	0	-0.059	-0.115	-0.217	-0.311	-0.547	-0.899

- Slope (α) = 2
- Intercept (I), $\ln(k)$ = -8.5
- Reaction rate constant, $k = e^{I}$
- $k = 2.02 \times 10^{-4}$ L/(mol·s)