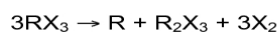


Kinetics Worksheet – Reaction Rates and Rate Laws

1) What are the usual units of reaction rate?

2) Concentrations of trace gases in the atmosphere are sometimes expressed in molecules/cm³. If these units are used for the concentrations, then what are the units for the reaction rate?

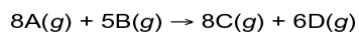
3. The compound RX₃ decomposes according to the equation



In an experiment the following data were collected for the decomposition at 100°C. What is the average rate of reaction over the entire experiment?

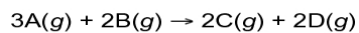
<u>t(s)</u>	<u>[RX₃](mol L⁻¹)</u>
0	0.85
2	0.67
6	0.41
8	0.33
12	0.20
14	0.16

4. Consider the following reaction



If [C] is increasing at the rate of 4.0 mol L⁻¹s⁻¹, at what rate is [B] changing?

5. For the reaction



the following data was collected at constant temperature. Determine the correct rate law for this reaction.

<u>Trial</u>	<u>Initial [A]</u> <u>(mol/L)</u>	<u>Initial [B]</u> <u>(mol/L)</u>	<u>Initial Rate</u> <u>(mol/(L·min))</u>
1	0.200	0.100	6.00 × 10 ⁻²
2	0.100	0.100	1.50 × 10 ⁻²
3	0.200	0.200	1.20 × 10 ⁻¹
4	0.300	0.200	2.70 × 10 ⁻¹