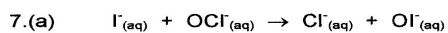
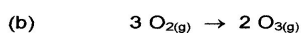


The rate of formation of O_2 is 1/2 times as fast as compared to the rate of disappearance of N_2O_5 .

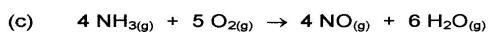
$$\text{rate of formation of } \text{O}_2 = 1/2 \times 2.5 \times 10^{-6} \text{ mol / L}\cdot\text{s} = 1.25 \times 10^{-6} \text{ mol / L}\cdot\text{s}$$



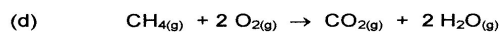
$$\text{Rate} = \frac{-\Delta[\text{I}^-]}{\Delta t} = \frac{-\Delta[\text{OCl}^-]}{\Delta t} = \frac{\Delta[\text{Cl}^-]}{\Delta t} = \frac{\Delta[\text{OI}^-]}{\Delta t}$$



$$\text{Rate} = -\frac{1}{3} \frac{\Delta[\text{O}_2]}{\Delta t} = \frac{1}{2} \frac{\Delta[\text{O}_3]}{\Delta t}$$



$$\text{Rate} = -\frac{1}{4} \frac{\Delta[\text{NH}_3]}{\Delta t} = -\frac{1}{5} \frac{\Delta[\text{O}_2]}{\Delta t} = \frac{1}{4} \frac{\Delta[\text{NO}]}{\Delta t} = \frac{1}{6} \frac{\Delta[\text{H}_2\text{O}]}{\Delta t}$$

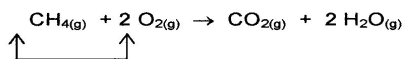


$$\text{Rate} = -\frac{\Delta[\text{CH}_4]}{\Delta t} = -\frac{1}{2} \frac{\Delta[\text{O}_2]}{\Delta t} = \frac{\Delta[\text{CO}_2]}{\Delta t} = \frac{1}{2} \frac{\Delta[\text{H}_2\text{O}]}{\Delta t}$$

8. (a) $[\text{CH}_4] = \frac{\text{mol}}{\text{L}} = \frac{8.0 \text{ mol}}{2.00 \text{ L}} = 4.0 \text{ mol / L}$

$$\text{Rate of consumption of } \text{CH}_4 = \frac{\text{concentration}}{\text{time}} = \frac{4.0 \text{ mol / L}}{3.2 \text{ s}} = 1.25 \text{ mol / L}\cdot\text{s}$$

(b) Rate of consumption of O_2



The rate of consumption of O_2 is 2 times as fast as compared to the rate of consumption of CH_4 is

$$2 \times 1.25 \text{ mol / L}\cdot\text{s} = 2.50 \text{ mol / L}\cdot\text{s}$$