

$$K_{eq} = \frac{[\text{products}]}{[\text{reactants}]}$$

substances in gas or aqueous phases only! (No solids or liquids)



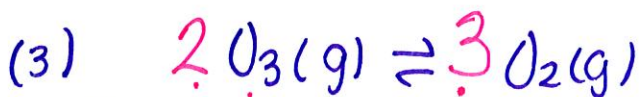
Calculate  $K_{eq}$  if  $[\text{NO}] = .0200\text{M}$ ,  $[\text{Cl}_2] = .0250\text{M}$ , and  $[\text{NOCl}] = .500\text{M}$ . Is the forward or reverse reaction favored?

$$K_{eq} = \frac{[\text{NOCl}]^2}{[\text{NO}]^2[\text{Cl}_2]} = \frac{[.500]^2}{([.0200]^2)[.0250]} = \frac{25000}{2.50 \times 10^{-4}}$$



Calculate  $K_{eq}$  if  $[\text{O}_2] = 1.50\text{M}$  and determine if the forward or reverse reaction is favored.

$$K_{eq} = \frac{[\text{O}_2]^3}{1} = [\text{O}_2]^3 = [1.50]^3 = 3.38$$



if  $[\text{O}_3] = 1.6 \times 10^{-2}\text{M}$  and  $[\text{O}_2] = 2.0 \times 10^{-2}\text{M}$ , calculate  $K_{eq}$ . Which reaction is favored?

$$K_{eq} = \frac{[\text{O}_2]^3}{[\text{O}_3]^2} = \frac{[2.0 \times 10^{-2}]^3}{[1.6 \times 10^{-2}]^2} \approx .031 \text{ reverse}$$