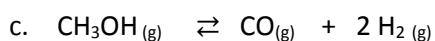
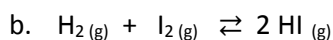


Show work for problems 2 – 4.

1. Write out the K_{EQ} expressions for each of the equilibrium systems below:



2. Consider the rxn: $2\text{NO} + \text{O}_2 \rightleftharpoons 2\text{NO}_2$

Under certain condition the equilibrium $[\text{NO}]$ is 0.0682M, the $[\text{O}_2]$ is 0.0341M and the $[\text{NO}_2]$ is 0.0682M. **Find the K_{eq} .**

3. Consider the rxn: $\text{N}_2\text{O}_4 + \text{E} \rightleftharpoons 2\text{NO}_2$

The initial $[\text{N}_2\text{O}_4]$ is 1.08M, once the reactions has proceeded for a period of time, the equilibrium $[\text{NO}_2]$ was found to be 0.96M. **Find the K_{eq} .**

4. $\text{H}_2 (\text{g}) + \text{I}_2 (\text{g}) \rightleftharpoons 2 \text{HI} (\text{g})$

- a. 0.80 moles of hydrogen and 1.65 moles of iodine in a 4.0 litre flask. At equilibrium, you discover that there are 1.40 moles of HI present.
Calculate the K_{eq} for this reaction.

- b. Assume the same temperature and pressure conditions as 4a above. If the same rxn was observed with different initial concentrations and the equilibrium concentrations of $[\text{H}_2]$ was found to be 0.20M and the $[\text{HI}]$ to be 1.80M at equilibrium.

Determine the equilibrium concentration of iodine (I_2).