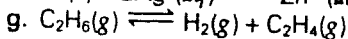
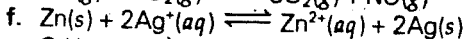
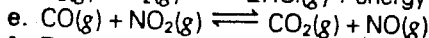
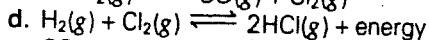
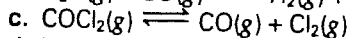
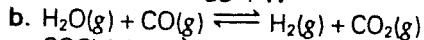
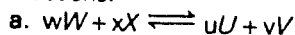
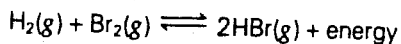


Equilibrium Exercise I

1. Write the equilibrium expression for the following reactions.

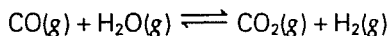


2. Consider the following equilibrium reaction.



The K_{eq} for this reaction at 25°C is 1.02. At equilibrium the concentration of HBr is 0.50 mol/L. Assuming H_2 and Br_2 are present in equal amounts, calculate the concentration of H_2 at equilibrium.

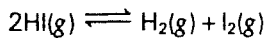
3. Analysis of the following equilibrium reaction at 900°C provides the concentrations listed below



Experiment	[CO]	[H ₂ O]	[CO ₂]	[H ₂]
1	0.352	0.352	0.648	0.148
2	0.266	0.266	0.234	0.234
3	0.186	0.686	0.314	0.314

Write the equilibrium expression for the reaction and calculate the value of the equilibrium constant for each experiment.

4. In the following reaction at 448°C, the equilibrium concentrations are $HI = 0.0040M$, $H_2 = 0.0075M$, $I_2 = 0.000043M$.



Calculate the equilibrium constant

5. If the temperature of an exothermic reaction at equilibrium is lowered, is the value of K_{eq} increased or decreased?