EQUILIBRIUM LESSON-2 QUIZ: EQUILIBRIUM CALCULATIONS I
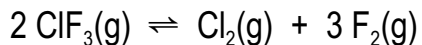
1. Chlorine trifluoride decomposes to chlorine and fluorine in a sealed flask.

$$2\ ClF_3(g) \rightleftharpoons Cl_2(g)\ +\ 3\ F_2(g)$$

   At equilibrium, the concentrations of the gases in the flask are as follows.

   $[ClF_3] = 0.17$ mol/L
   $[Cl_2] = 0.16$ mol/L
   $[F_2] = 0.19$ mol/L

   Calculate the equilibrium constant for the system.
   Clearly show your process.
   Report the answer in scientific notation.

2. In a 2.0-L closed vessel at 2000°C there are 0.50 mol of $CO_2(g)$, $8.0×10^{-3}$ mol of CO(g), and $4.0×10^{-3}$ mol of $O_2(g)$. Is the system at equilibrium? If not, in which direction is the system shifting? Clearly show your process.

$$2\ CO_2(g) \rightleftharpoons 2\ CO(g)\ +\ O_2(g) \qquad K_{2000°C} = 6.4×10^{-7}$$