Trial Keq Calculations

Work with your group to solve the following problems. Use the equilibrium expression for each reaction and show all of your work on a separate piece of paper. You may be asked to put your solution on the board.

**Trial Keq (or Q) is calculated using the equilibrium expression and then the value is compared to the actual Keq to determine the direction of shift.**

1. If 2.0 mol of NO, 0.20 mol of O2 and 0.40 mol of NO2 are placed in a 2.0 L flask, which way will the reaction shift to reach equilibrium?

2 NO(g) + O2(g)  2 NO2(g) ; Keq = 49

1. Consider the chemical system shown below:

CO(g) + H2O(g) CO2(g) + H2(g); Keq = 10.0

The following concentrations were observed. Is the reaction at equilibrium? If not, how will

it shift in order to reach equilibrium?

[CO] = 1.5 M [H2] = 1.2 M [CO2] = 1.0 M [H2O] = 0.10 M

1. Initially, 0.50 M of each reactant and 0.30 M of each product are present in the container. When equilibrium is established, what is the equilibrium [SO2] if Keq = 1.5 x 10-2?

SO3(g) + NO(g)  SO2(g) + NO2(g)