Q test and Reaction Shift

1. Kc = 5.6 x 10-12 at 500 K for the reaction I2 (g) 🡨🡪 2 I (g). A mixture contains [I2 (g)] = 0.020 and [I] = 2.0 x 10-8. Is the reaction at equilibrium? If not which way will it shift
2. A mixture of SO2, O2, and SO3 at 100 K contains the gases at the following concentrations: [SO2] = 5.0 x 10-3 M, [O2] = 1.9 x 10-3 M, and [SO3] = 6.9 x 10-3 M. If Kc for the reaction is 279, determine if the reaction is at equilibrium or not. If not, determine the direction of the shift 2 SO2 + O2 🡨🡪 2 SO3
3. The reaction 2 NO (g) 🡨🡪 N2O4 (g) has an equilibrium constant, Kc, of 170 at 25 °C. if 2.0 x 10-3 mol of NO2 is present in a 10.0 L flask along with 1.5 x 10-3 mol of N2O4, is the system at equilibrium? If not, determine the shift direction
4. Kc for the reaction 2 NOCl (g) 🡨🡪 2 NO (g) + Cl2(g) is 3.9 x 10-3at 300 °C. A mixture contains the gases at the following concentrations: [NOCl] = 5.0 x 10-3, [NO] = 2.5 x 10-3, [Cl2] = 2.0 x 10-3. Is the reaction at equilibrium? Determine the direction of shift.
5. 
6. 
7. 
8. The equilibrium constant, K, is 2.4 x 103 for the reaction

2NO (g) <----> N2 (g) + O2 (g. for which of the following sets of conditions is the system at equilibrium? for those that are not at equilibrium, in which direction will the system shift?

1. a 1.0 L flask contains 0.024 mol NO, 2.0 mol N2, and 2.6 mol O2.
2. a 2.0 L flask contains 0.032 mol NO, 0.62 mol N2, and 4.0 mol O2.
3. a 3.0 L flask contains 0.060 mol NO, 2.4 mol N2, and 1.7 mol O2.
4. The equilibrium constant, Kp , is 2.4 x 103 for the reaction

2NO (g) <----> N2 (g) + O2 (g). For which of the following sets of conditions is the system at equilibrium? for those that are not at equilibrium, in which direction will the system shift?

1. Pno = 0.010 atm, PN2 = 0.11 atm, PO2 = 2.0 atm
2. Pno = 0.0078 atm, PN2 = 0.36 atm, PO2 = 0.67 atm
3. Pno = 0.0062 atm, PN2 = 0.51 atm, PO2 = 0.18 atm