Skill Practice 64

Quotient Practice

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hour: \_\_\_\_\_

1. The following reaction has an equilibrium constant Kc equal to 3.07x10-4. At a given moment in time, the concentration of NOBr was 0.181 M, the concentration of NO was 0.0123 M and the concentration of Br2 was 0.0201 M. Is the reaction at equilibrium? If not, indicate whether more products or more reactants will be formed. 2NOBr (g) 🡨🡪 2NO (g) + Br2 (g)
2. Consider the reaction 2 H2S (g) + 3 O2 (g) 🡨🡪 2 H2O (g) + 2 SO2 (g) where Kc = 2.38. The reaction began and after a while, the sample was analyzed and the concentration of SO2 was 0.085 M, the concentration of H2O was 0.071 M, the concentration of O2 was 0.162M and the concentration of H2S was 0.059 M. As the reaction proceeds from this moment forward, do you expect more products to form or more reactants? Explain.
3. Given the reaction: H2 + I2 🡨🡪 2 HI. The equilibrium constant Kc is 0.481. The concentrations of H2, I2, and HI were measured at various times. For each of the following sets of data indicate whether the reaction is at equilibrium or not. If the reaction is not at equilibrium, then indicate whether more reactants will form or whether more products need to form to attain equilibrium.
   1. [H2] = 0.27 M; [I2] = 0.40 M; [HI] = 0.31 M
   2. [H2] = 0.46 M; [I2] = 0.34 M; [HI] = 0.28 M
   3. [H2] = 0.18 M; [I2] = 0.29 M; [HI] = 0.48 M
   4. [H2] = 0.257 M; [I2] = 0.269 M; [HI] = 0.510 M