Manipulating Reactions and changes in K

1. The reaction NO2 (g) + NO (g) 🡨🡪 N2O (g) + O2 (g) has Kc = 0.914 at a certain temperature. At this same temperature determine Kc for the following reaction 2 N2O (g) + 2 O2 (g) 🡨🡪 2 NO2 (g) + 2 NO (g)
2. How does the equilibrium constant, Kc, of the second reaction compare with that of the first reaction below;

H2 (g) + Cl2(g) 🡨🡪 2 HCl and ½ H2 (g) + ½ Cl2 🡨🡪 HCl (g). How does Kc for this reaction compare to the first above. 2HCl (g) 🡨🡪 H2 (g) + Cl2 (g)?

1. Use the following equilibria to calculate Kc for the reaction below:

2CH4 (g) 🡨🡪C2H6 (g) + H2 (g) Kc = 9.5 x 10-13

CH4 (g) + H2O (g) 🡨🡪 CH3OH (g) + H2 (g) Kc = 2.8 x 10-21

2 CH3OH (g) + H2 (g) 🡨🡪 C2H6 (g) + 2H2O (g) Kc = ?

1. Kc for the reaction N2 (g)+ O2 (g) 🡨🡪 2 NO (g) is 1.7 x 10-3 at 2300 K. What is Kp for the reaction, what is Kc for the reaction:

½ N2 (g)+ ½ O2 (g) 🡨🡪 NO (g), what is Kc for the reaction when written as

2 NO (g) 🡨🡪 O2 (g) + N2 (g)

1. The equilibrium constant for the reaction 2 HI (g)( 🡨🡪 H2 (g) + I2 (g) at 425°C is 1.84. What is the value of the equilibrium constant for the following reaction at 425 °C? H2(g) + I2 (g) 🡨🡪 2HI (g)?
2. Kc for the reaction CS2(g) + 4 H2 (g) 🡨🡪 CH4(g) + 2 H2S (g) at 900°C is 27.8. What is the value of Kc for the following reaction at 900 °C?

 ½ CS2(g) + 2 H2 (g) 🡨🡪 ½ CH4(g) + H2S (g)

1. The value of Kc for the following reaction at 900 °C is 0.28.

CS2 (g) + 4H2 (g) 🡨🡪 CH4 (g) + 2 H2S (g). What is Kp at this temperature?

1. The reaction SO2 (g) + ½ O2 (g) 🡨🡪 SO3 (g) has Kp = 6.55 at 627°C. What is Kc at this temperature?









1. At 1100 Kp= 0.25 for the reaction 2SO2 (g) + O2 (g) <----> 2SO3 (g). What is the value of Kcat this temperature?