Practice

1. What is the equilibrium constant expression for:
   $N_2 + 2\ O_2 = 2NO_2$

2. If 0.40 mol of C, 0.20 mol of CO_2, and 0.10 mol of CO exist at equilibrium in a 2 Liter container, what is the equilibrium constant?
   $C_{(s)} + CO_{2(g)} = 2\ CO_{(g)}$

3. Carbonic acid in the blood decomposes on the lungs according to this equation:
   $H_2CO_{3\ (aq)} = H_2O_{(g)} + CO_{2(g)}$
   What is the effect on the concentration of H_2CO_3 at high altitudes?

4. What is the concentration of O_3 if the pressure is increased?
   $3O_{2\ (g)} = 2O_{3\ (g)}$

5. How can you increase the concentration of NH_3 in this equation:
   $N_{2\ (g)} + 3H_{2\ (g)} = 2NH_{3(g)} + 22$ kcal

6. A rxn has K = 1.78×10^{-5} at 586 degrees C and K = 6.54×10^{-2} at 378 degrees C. If more products are wanted, which temperature would you recommend?

7. Find the concentration of C if .375 M of A and .325 M of B are initially placed in a flask. K= 1.0×10^{-9} $2A + B = C + D$

8. Find K for the equation A + B = 2 D, if initially 1.00 mol of A, 1.50 mol of B, and 0.500 mol of D are placed in a 1 Liter flask and allowed to come to equilibrium 0.750 mol of D is present.

1. $K = [NO_2]^2 / [N_2][O_2]^2$
2. 0.025M
3. The concentration of carbonic acid would decrease.
4. The concentration of O_3 would increase.
5. Lower the temperature, add N2 or H2
6. Want the temperature to be 378 ^{O}C.
7. $[C] = 6.76 \times 10^{-6}$ M
8. K = 0.47