

CHE 112 - Homework - Ch 13a  
Equilibrium Constants

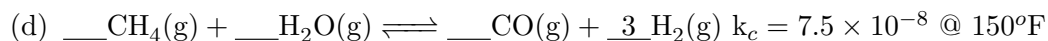
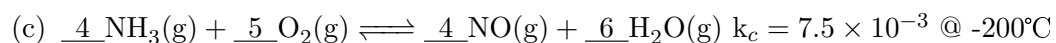
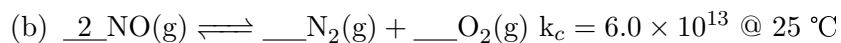
OER 13.1-13.2

Score: \_\_\_\_/25

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

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

[4 pt] 1. For each of the following reactions, write the equilibrium constant expression for  $k_c$ :



[4 pt] 2. For the reactions in Question 1, will the concentration of the (R)eactants or (P)roducts be favored. Explain.

2(a)

2(b)

2(c)

2(d)

[4 pt] 3. For each of the reactions in Question 1, calculate  $k_p$ .

3(a)

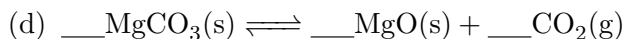
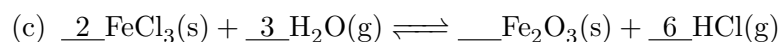
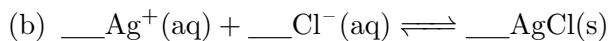
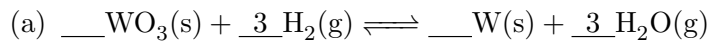
3(b)

3(c)

3(d)

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[4 pt] 4. For each of the following reactions, write the equilibrium constant expression for  $k_c$ :



[3 pt] 5. What is the value for  $k_r$  for the reaction  $\underline{2} \text{NO}_2(\text{g}) \rightleftharpoons \underline{\hspace{1cm}} \text{N}_2\text{O}_4(\text{g})$  at 400 K if the value of  $K_f$  for the reaction  $\underline{\hspace{1cm}} \text{N}_2\text{O}_4(\text{g}) \rightleftharpoons \underline{2} \text{NO}_2(\text{g})$  is 50.2 at 400 K? Explain.

[3 pt] 6. The partial pressures in an equilibrium mixture of NO, Cl<sub>2</sub>, and NOCl at 500 K are 0.240 atm, 0.608 atm, and 1.35 atm respectively. What is the value of  $k_p$  for the reaction  $\underline{2} \text{NO}(\text{g}) + \underline{\hspace{1cm}} \text{Cl}_2(\text{g}) \rightleftharpoons \underline{2} \text{NOCl}(\text{g})$  at 500 K? Explain.

[3 pt] 7. Given the following information, write the overall reaction, **AND** calculate the equilibrium constant for the combined reaction.

