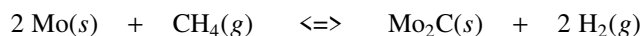




7. Complete the following table of changes.

	$4 \text{ NH}_3(g)$	+	$7 \text{ O}_2(g)$	$\rightleftharpoons$	$4 \text{ NO}_2(g)$	+	$6 \text{ H}_2\text{O}(g)$
<b>Initial</b>	0.30 atm		0.70 atm		0		0
<b>Change</b>							
<b>Equilibrium</b>							

8. Solid molybdenum is placed in contact with gaseous  $\text{CH}_4$  at a pressure of 0.68 atm in a sealed empty reaction vessel at 300 K. After equilibrium is reached the total pressure in the container is 1.13 atm.

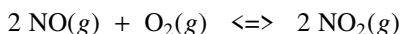


a) What is the equilibrium pressure of  $\text{H}_2$ ? [0.90 atm]

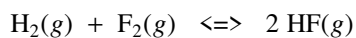
b) Write the expression for  $K_p$ .

c) Determine the numerical value of  $K_c$ . [0.14]

9. Determine  $K_p$  if the initial partial pressures are:  $P_{\text{NO}} = 0.70$  and  $P_{\text{O}_2} = 0.55$  atm and, when equilibrium has been reached,  $P_{\text{NO}_2} = 0.20$  atm for: [0.36]



10. The following reaction was run in a 3.00 L vessel at a temperature where  $K = 115$ :



a) If 6.00 mol of all three components were initially added what are their equilibrium concentrations?  
 $[\text{H}_2] = [\text{F}_2] = 0.47 \text{ M}$ ,  $[\text{HF}] = 5.06 \text{ M}$

b) If 3.00 mol of  $\text{H}_2$  and 6.00 mol of  $\text{F}_2$  were initially added what are all the equilibrium concentrations?  
 $[\text{H}_2] = 0.03 \text{ M}$ ,  $[\text{F}_2] = 1.03 \text{ M}$ ,  $[\text{HF}] = 1.94 \text{ M}$