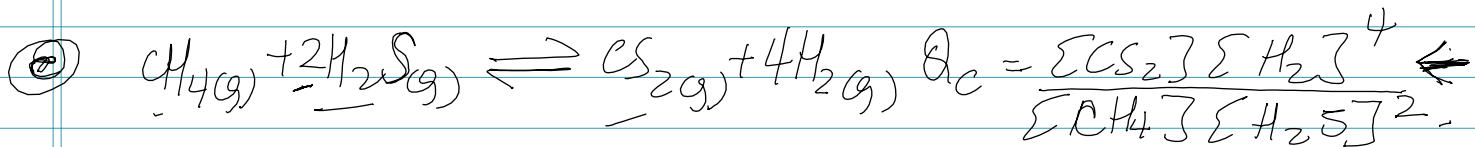
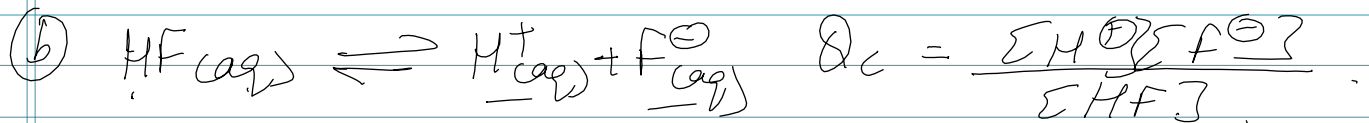
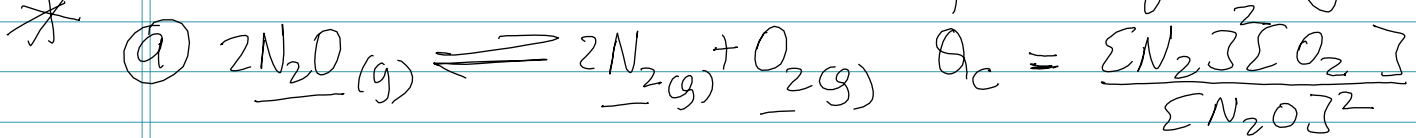


## Eq (4) $Q_p/Q_c$ - Reaction Quotients.

\* ① Write the  $Q_c$  expressions for the following rxns.



\*  $Q_c < K_c$   $\times$   $Q_c = K_c$   $\times$   $Q_c > K_c$   
 eq. more right (products) eq.  $\times$  eq. more left (reactant)

② The  $K_c$  for  $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$  is 1.2 at 375°C.

\* What is the direction of the eq. if the conc. of each component is as follows:  
 $[H_2] = 0.76M$ ,  $[N_2] = 0.60M$  and  $[NH_3] = 0.48M$

Ans  $Q_c = \frac{[NH_3]^2}{[N_2][H_2]^3} = \frac{(0.48)^2}{(0.60)(0.76)^3} = 0.87$   $\left[ \begin{array}{l} Q_c < K_c \\ 0.87 < 1.2 \\ \rightarrow \text{right} \end{array} \right]$

③ For the reaction  $H_2S(g) + I_2(s) \rightleftharpoons 2HI(g) + S(s)$ ,  
 $K_p = 1.34 \times 10^{-5}$  at 60°C. Which gas will decrease in pressure if starting pressures are:  
 $H_2S = 0.010 \text{ atm}$ ;  $HI = 0.001 \text{ atm}$ :

Ans  $Q_p = \frac{(P_{HI})^2}{(P_{H_2S})} = \frac{(0.0010)^2}{(0.010)} = 1.0 \times 10^{-4}$   $\because K_p = 1.34 \times 10^{-5}$   
 $K_p < Q_p$   $Q_p > K_p$   
 $\leftarrow$  reactant  $H_2S$   $\uparrow$  increases