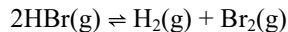


Some Equilibrium Revision Questions

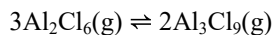
- 1) For the equilibrium $X(g) \rightleftharpoons Y(g) + Z(g)$, a 500 cm^3 flask contains 1 mol X, 1.5 mol Z and 2.5 mol Y in equilibrium together at 0°C . Find K_p for the reaction. If a second equilibrium mixture at the same temperature has $P_x = 10 \text{ atm}$ and $P_y = 6 \text{ atm}$, find P_z .

- 2) In an experiment conducted at a certain temperature, some HBr was admitted into an evacuated 2000 cm^3 vessel and when equilibrium was attained some had decomposed yielding 6.32 mol of bromine as one product.



The equilibrium constant was 7.50.

- What was the concentration of each species present at equilibrium?
 - What mass of HBr was originally let into the vessel?
- 3) At elevated temperatures, aluminium chloride, Al_2Cl_6 , reacts to form Al_3Cl_9 according to the equation:



In an experiment at 454 K, the equilibrium partial pressure of Al_2Cl_6 is 1.00 atm, and the equilibrium partial pressure of Al_3Cl_9 is $1.02 \times 10^{-2} \text{ atm}$. Calculate the equilibrium constants, K_p and K_c of the above reaction at 454 K.