



Nitrogen reacts with hydrogen as shown: $3\text{H}_2(\text{g}) + \text{N}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$ $\Delta\text{H} = -76 \text{ kJ mol}^{-1}$

10.0 moles of hydrogen was mixed with 5.0 moles of nitrogen. At equilibrium, there was found to be 3.0 moles of ammonia. The total pressure was $2.0 \times 10^7 \text{ Pa}$.

a Write an expression for K_p for this equilibrium.

.....

b State the units of K_p

c Calculate the moles of hydrogen and nitrogen at equilibrium.

hydrogen = nitrogen =

d Calculate the partial pressure of each gas.

hydrogen = nitrogen = ammonia =

e Calculate K_p for this equilibrium.

.....

.....

.....

.....

f Explain what would happen to the position of the equilibrium and the value of K_p if the total pressure of gases was decreased?

.....

.....

.....

.....

g Explain what would happen to the position of the equilibrium and the value of K_p if the temperature of gases was decreased?

.....

.....

.....

.....