At a high temperature, 0.50 mol of HBr was placed in a 1.0 L container and allowed to decompose according to the reaction:

$$2HBr(g)$$
  $\Rightarrow$   $H_{2(g)} + Br_{2(g)}$ 

At equilibrium the [Br<sub>2</sub>] was measured to be 0.13 M. What is  $K_{eq}$  for this reaction at this temperature?

	2HBm =	# Ha +	Br2
[I]	0.50	0	0
[C]	-0.26	+0.13	+0.13
TE1	0.24	0.13	0.13

Keg =	IH2][Br2] IHBr]2	= (0.13)2	-000
	IHB-J2	(0.24)2	-0.24

Answer Keg = 0.29

 When 1.0 mol of NH<sub>3(g)</sub> and 0.40 mol of N<sub>2(g)</sub> are placed in a 5.0 L vessel and allowed to reach equilibrium at a certain temperature, it is found that 0.78 mol of NH<sub>3</sub> is present. The reaction is:

a) Calculate the equilibrium concentrations of all three species

IE 1 0.156

Answer

b), Calculate the value of the equilibrium constant at this temperature.

[use unrounded cones, then round to 2 5 03]

$$\text{Keg} = \frac{\text{LH}_2 \text{J}^3 \text{EN}_2 \text{J}}{\text{ENH}_3 \text{J}^2} = \frac{(0.066)^3 (0.102)}{(0.156)^2} = 0.0012$$
Answer  $1.2 \times 10^{-3}$ 

c) How many moles of H<sub>2</sub> are present at equilibrium?

d) How many moles of N<sub>2</sub> are present at equilibrium?

Answer 0.51 mol

0.33 mal

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