Sapresup9 ..

Eq 6) Equilibrium Calculation (ICE) ②

The reaction $H_{2(g)} + Br_{2(g)} \rightleftharpoons 2HBr$ has a K_c of 2.18×10^6 at 730°C. Calculate the conc. of H_2, Br_2 and HBr if starting conc. of HBr is 3.20 mol in a 12.0L container.

Ans.

$\frac{3.20}{12L} = 0.267M$

	$H_{2(g)}$	+ $Br_{2(g)}$	$\rightleftharpoons$ $2HBr$
I	0	0	0.267
C	+x	+x	−2x (b/c coeff is 2)
E	x	x	(0.267−2x)

$$K_c = \frac{[HBr]^2}{[H_2][Br_2]} = \frac{(0.267-2x)^2}{(x)(x)}$$

$$2.18 \times 10^6 = \frac{(0.267-2x)^2}{x^2}$$

√ everything above:

$$1.48 \times 10^3 = \frac{0.267-2x}{x}$$

$$x = 1.80 \times 10^{-4}$$

↑ $[H_2]$ & $[Br_2]$

* coeff!! 2x

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Eg ⑥ Equilibrium Calculation (ICE) ②

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* coeffs !! 2x