

Equilibrium: The logic in calculations

1. Fill in the table and determine the composition at equilibrium

$2 \text{NH}_3 (\text{g}) \leftrightarrow \text{N}_2 (\text{g}) + 3 \text{H}_2 (\text{g})$

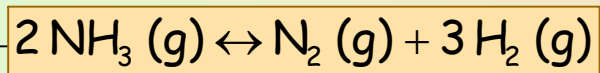
initial	2.2	1.8	2.4
changes			
equilibrium			3.0

Change in horizontal direction:
coefficients 2:1:3

Time logic in vertical direction:
 $n_{\text{final}} = n_{\text{initial}} + n_{\text{change}}$

Initial

$n(\text{NH}_3) = 2.2 \text{ mol}$
 $n(\text{N}_2) = 1.8 \text{ mol}$
 $n(\text{H}_2) = 2.4 \text{ mol}$



Equilibrium

$n(\text{NH}_3) =$
 $n(\text{N}_2) =$
 $n(\text{H}_2) = 3.0 \text{ mol}$

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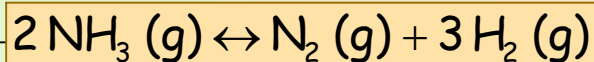
initial	2.2	1.8	2.4
changes			0.6
equilibrium			3.0

Time logic in vertical direction:

$$n_{\text{final}} = n_{\text{initial}} + n_{\text{change}}$$

Initial

$n(\text{NH}_3) = 2.2 \text{ mol}$
 $n(\text{N}_2) = 1.8 \text{ mol}$
 $n(\text{H}_2) = 2.4 \text{ mol}$



Equilibrium

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 $n(\text{H}_2) = 3.0 \text{ mol}$

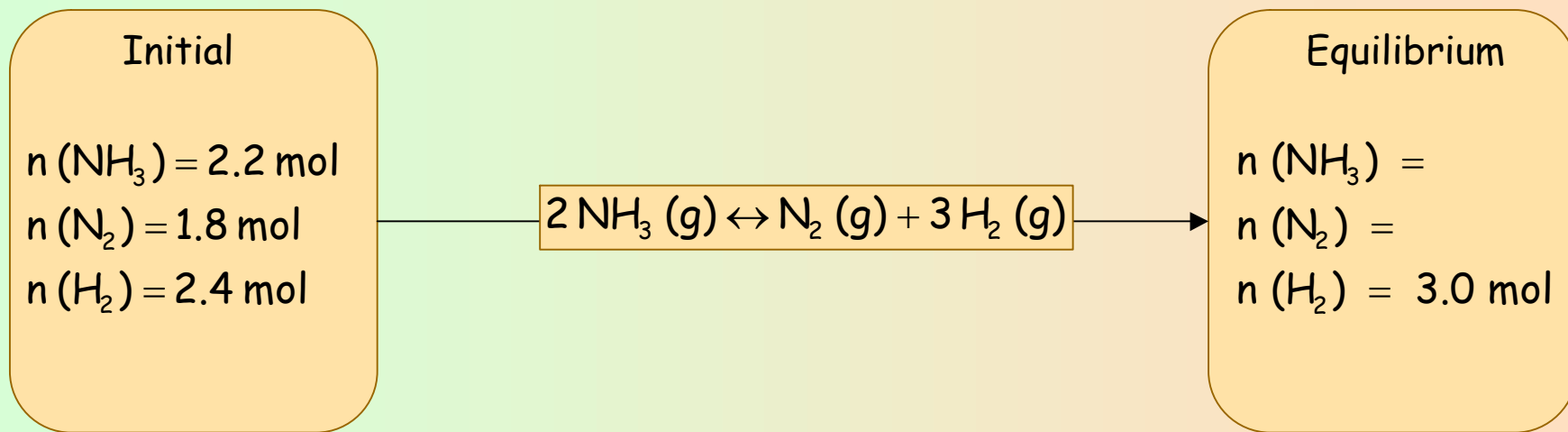
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$2 \text{NH}_3 (\text{g}) \leftrightarrow \text{N}_2 (\text{g}) + 3 \text{H}_2 (\text{g})$

initial	2.2	1.8	2.4
changes	-0.4	0.2	0.6
equilibrium			3.0

Change in horizontal direction:
coefficients 2:1:3



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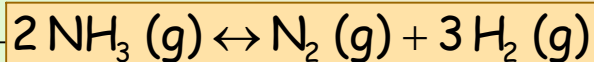
initial	2.2	1.8	2.4
changes	-0.4	0.2	0.6
equilibrium	1.8	2.0	3.0

Time logic in vertical direction:

$$n_{\text{final}} = n_{\text{initial}} + n_{\text{change}}$$

Initial

$n(\text{NH}_3) = 2.2 \text{ mol}$
 $n(\text{N}_2) = 1.8 \text{ mol}$
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Equilibrium

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 $n(\text{N}_2) = 2.0 \text{ mol}$
 $n(\text{H}_2) = 3.0 \text{ mol}$