Rafa Muñoa
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Equilibrium: The logic in calculations

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

$$2\,NH_3\,(g) \leftrightarrow N_2\,(g) + 3\,H_2\,(g)$$

initial	2.2	1.8	2.4
changes			
equilibrium			3.0

Change in horizontal direction: coefficients 2:1:3

Time logic in vertical direction:

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

Initial

$n(NH_3) = 2.2$ mol
$n(N_2) = 1.8$ mol
$n(H_2) = 2.4$ mol

$$2\,NH_3\,(g) \leftrightarrow N_2\,(g) + 3\,H_2\,(g)$$

Equilibrium

$n(NH_3) =$
$n(N_2) =$
$n(H_2) = 3.0$ mol

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	NH_3	N_2	H_2
initial	2.2	1.8	2.4
changes			0.6
equilibrium			3.0

Time logic in vertical direction:

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

Initial

$n(NH_3) = 2.2$ mol
$n(N_2) = 1.8$ mol
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equilibrium			3.0

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Equilibrium

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$n\,(N_2) =$
$n\,(H_2) = 3.0$ mol

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	NH_3	N_2	H_2
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:

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

Initial

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$n(N_2) = 1.8$ mol
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Equilibrium

$n(NH_3) = 1.8$ mol
$n(N_2) = 2.0$ mol
$n(H_2) = 3.0$ mol