Thermodynamics of equilibrium

General Chemistry, CH102 Spring 2011

1. We have derived that $\Delta G = \Delta G^o + R\,T\ln(Q)$. What is the value of ***Q*** when everything is in **standard states**?

0% 1. Q = infinity
0% 2. Q = 1
0% 3. Q = 0
0% 4. More information needed

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2. We have derived that $\Delta G = \Delta G^o + R\,T\ln(Q)$. What is the value of **ΔG** when everything is in **standard states**?

0% 1. $\Delta G = 0$
0% 2. $\Delta G = 1$
0% 3. $\Delta G = \Delta G^o$
0% 4. More information needed

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3. We have derived that $\Delta G = \Delta G^o + R\,T\ln(Q)$. What is the value of **ΔG** when ***Q = K***?

0% 1. $\Delta G = 0$
0% 2. $\Delta G = 1$
0% 3. $\Delta G = \Delta G^o$
0% 4. More information needed

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4. We have derived that $\Delta G = \Delta G^o + R\,T\ln(Q)$. What is the value of **ΔG^o** when ***Q = K***?

0% 1. $\Delta G^o = 0$
0% 2. $\Delta G^o = 1$
0% 3. $\Delta G^o = -R\,T\ln(K)$.
0% 4. More information needed

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5. We have derived that $\Delta G = \Delta G^o + R\,T\ln(Q)$. What is the value of **ΔG^o** when ***Q* does not equal *K***?

0% 1. $\Delta G^o = 0$
0% 2. $\Delta G^o = 1$
0% 3. $\Delta G^o = -R\,T\ln(K)$.
0% 4. More information needed

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6. We have derived that $\Delta G^o = \Delta H^o - T\,\Delta S^o = -\,R\,T\ln(K)$. How does $\ln(K)$ depend on T?

0% 1. $\ln(K)$ is proportional to T
0% 2. $\ln(K)$ does not depend on T
0% 3. $\ln(K)$ is proportional to $1/T$
0% 4. None of the above

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7. We have derived that $\Delta G^o = \Delta H^o - T\,\Delta S^o = -\,R\,T\ln(K)$. What best describes the graph of $\ln(K)$ versus $1/T$?

0% 1. An hyperbola
0% 2. A parabola
0% 3. A straight line
0% 4. None of the above

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8. The graph of $\ln(K)$ versus $1/T$ is a straight line. What is the **slope** of the graph of $\ln(K)$ versus $1/T$?

0% 1. 1
0% 2. $+\Delta H^o/R$
0% 3. $-\Delta H^o/R$
0% 4. 0 (horizontal line)

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8. The graph of $\ln(K)$ versus $1/T$ is a straight line. What is the **value** of $\ln(K)$ at **infinite *T***?

0% 1. 0
0% 2. 1
0% 3. $\Delta S^o/R$
0% 4. infinite
0% 5. None of the above

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8. The **value** of $\ln(K)$ at **infinite *T***? is $\Delta S^o/R$. Why does the value of $\ln(K)$ at infinite T **not depend on ΔH^o**?

0% 1. Reactions result in **zero entropy** in the **surroundings** when T = infinity.
0% 2. Reactions result in **zero entropy change** in the **surroundings** when T = infinity.
0% 3. Reactions result in **zero entropy** in the **system** when T = infinity.
0% 4. Reactions result in **zero entropy** in the **system** when T = infinity.
0% 5. Both 2 and 4

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