k, *K* and *T*

General Chemistry, CH102 Spring 2011

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1. When T is increased, the rate of **every** chemical reaction must ...

0% 1. increase
0% 2. stay the same
0% 3. decrease
0% 4. More information needed

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2. For a particular reaction at 25 °C, the rate law is found to be $k[X][Y]^2$. At 50 °C, the rate **must** be larger than at 25 °C because of change in ...

0% 1. [X]
0% 2. [Y]
0% 3. k
0% 4. [X], [Y] and k

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3. The rate constant depends on T as

$k = A \exp(-|E_a|/(R\,T))$

As T **approaches 0**, the values of ***k* approaches** ...

0% 1. 0
0% 2. A
0% 3. $|E_a|/(R\,T)$
0% 4. infinity

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4. The rate constant depends on T as

$k = A \exp(-|E_a|/(R\,T))$

As T **approaches infinity**, the values of ***k* approaches** ...

0% 1. 0
0% 2. A
0% 3. $|E_a|/(R\,T)$
0% 4. infinity

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5. For an elementary reaction, $K = k_{for}/k_{rev}$. The forward and reverse rate constants, k_{for} and k_{rev}, both increase with T. This means as T is increased, ***K* must always** ...

0% 1. increase
0% 2. stay the same
0% 3. decrease
0% 4. Further information needed

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6. What **must be true** for a reaction to be **endothermic**?

0% 1. $k_{for} > k_{rev}$
0% 2. $k_{for} < k_{rev}$
0% 3. $E_{a,for} > E_{a,rev}$
0% 4. $E_{a,for} < E_{a,rev}$
0% 5. Further information needed

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7. What **must be true** so that the equilibrium constant
$K = k_{for}/k_{rev}$
will **increase** with **increasing *T***?

0% 1. $k_{for} > k_{rev}$
0% 2. $k_{for} < k_{rev}$
0% 3. k_{for} increases faster than k_{rev}
0% 4. k_{for} increases more slowly than k_{rev}
0% 5. Further information needed

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8. What **must be true** so that the equilibrium constant
$K = k_{for}/k_{rev}$
will **increase** with **increasing *T***?

0% 1. $E_{a,for} > E_{a,rev}$
0% 2. $E_{a,for} < E_{a,rev}$
0% 3. The reaction is exothermic
0% 4. The reaction is endothermic
0% 5. 1 and 3
0% 6. 2 and 4
0% 7. 1 and 4
0% 8. 2 and 3

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9. What **must be true** so that the equilibrium constant,
$K = k_{for}/k_{rev}$
will **decrease** with **increasing *T***?

0% 1. $k_{for} < k_{rev}$
0% 2. $E_{a,for} < E_{a,rev}$
0% 3. The reaction is exothermic
0% 4. 1 and 2
0% 5. 2 and 3
0% 6. 1 and 3
0% 7. 1, 2 and 3

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10. The forward rate constant
$k_{for} = A_{for} \exp(-|E_{a,for}|/(R\,T))$
approaches A_{for} at very high T. This means at **very high *T*** the equilibrium constant ***K* must approach** …

0% 1. infinity
0% 2. A_{for}/A_{rev}
0% 3. $\Delta S/R$
0% 4. 2 and 3

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