Select the correct value with the appropriate number of sig figs for $10^{1.541}$

1. 34.8
2. 34.75
3. 34.754
4. 34.7536
5. 34.75362

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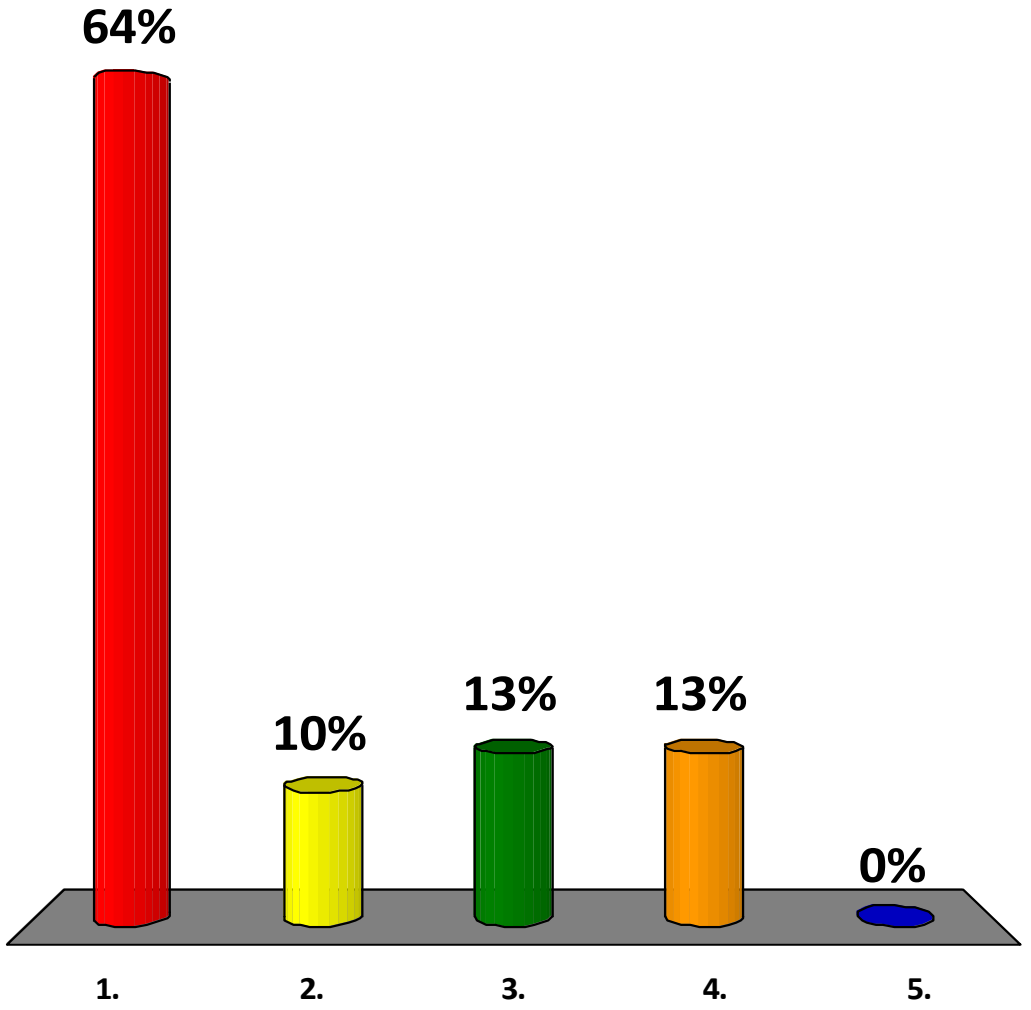

Which expression for K_{sp} is correct for the following reaction

$$CaF_2\,(s) \rightleftharpoons Ca^{2+}\,(aq) + 2\,F^-\,(aq)?$$

1. $[Ca^{2+}][F^-]$
2. $[Ca^{2+}][F^-]/[CaF_2]$
3. $[Ca^{2+}][F^-]^2$
4. $[Ca^{2+}][F^-]^2/[CaF_2]$

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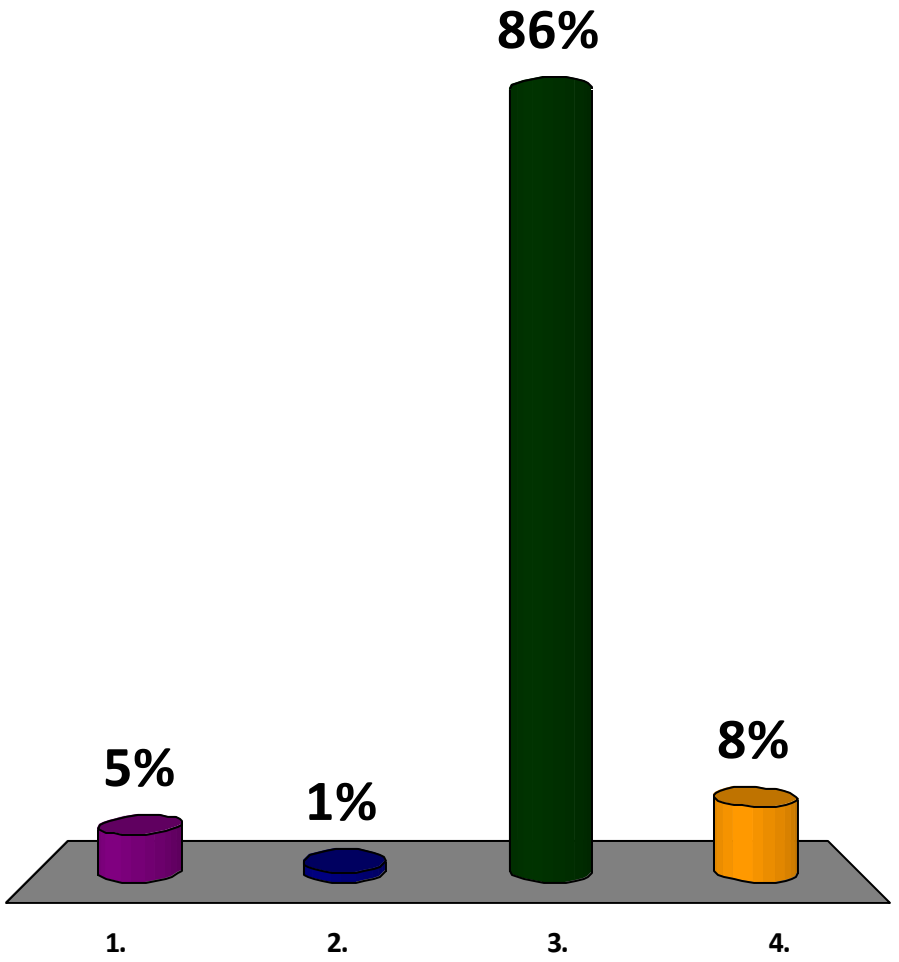
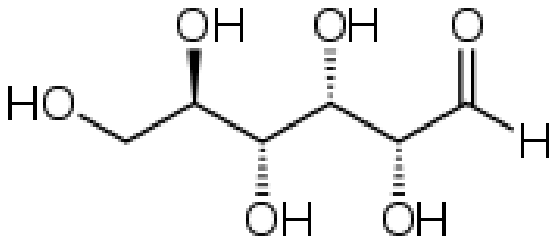
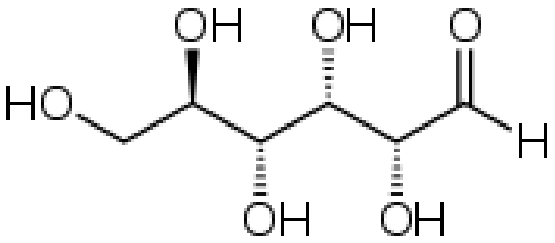


Is glucose a hydrogen bond donor or hydrogen bond acceptor (or both or neither)?



1. Hydrogen bond acceptor
2. Hydrogen bond donor
3. <u>Both</u> a hydrogen bond acceptor and donor
4. <u>Neither</u> a hydrogen bond acceptor or donor

Is glucose a hydrogen bond donor or hydrogen bond acceptor (or both or neither)?



5% 1. Hydrogen bond acceptor

8% 2. Hydrogen bond donor

87% 3. Both a hydrogen bond acceptor and donor

0% 4. Neither a hydrogen bond acceptor or donor

From the figure and your knowledge of partial pressures, state which of the following are true:

1. Oxygen is more soluble in liquid at 0.5 atm than helium.
2. Solubility of each gas increases as its partial pressure increases
3. An increase in partial pressure of a gas will increase the rate at which gas molecules strike the surface of solvent, increasing the solubility of the gas
4. All of the above

From the figure and your knowledge of partial pressures, state which of the following are true:

1% 1. Oxygen is more soluble in liquid at 0.5 atm than helium.

5% 2. Solubility of each gas increases as its partial pressure increases

2% 3. An increase in partial pressure of a gas will increase the rate at which gas molecules strike the surface of solvent, increasing the solubility of the gas

92% ★ 4. All of the above

What is true if the enthalpy of solution, ΔH_{sol} is positive?

1. dissolving is never spontaneous
2. dissolving is only spontaneous if $T\Delta S$ is positive and larger than ΔH_{sol}
3. dissolving is only spontaneous if $T\Delta S$ is negative
4. the rate of dissolving will be slower

What is true if the enthalpy of solution, ΔH_{sol} is positive?

4%

1. dissolving is never spontaneous

76%

2. dissolving is only spontaneous if $T\Delta S$ is positive and larger than ΔH_{sol}

16%

3. dissolving is only spontaneous if $T\Delta S$ is negative

4%

4. the rate of dissolving will be slower

From Example 2b:

Identify which are Bronsted-Lowry acids and which are Bronsted-Lowry bases for

$HCO_3^-(aq) + H_2O(l) \rightleftharpoons H_2CO_3(aq) + OH^-(aq)$

1. HCO_3^- acid H_2O acid H_2CO_3 base OH^- base
2. HCO_3^- acid H_2O base H_2CO_3 base OH^- acid
3. HCO_3^- acid H_2O base H_2CO_3 acid OH^- base
4. HCO_3^- base H_2O acid H_2CO_3 base OH^- acid
5. HCO_3^- base H_2O acid H_2CO_3 acid OH^- base
6. HCO_3^- base H_2O base H_2CO_3 acid OH^- acid

From Example 2b:

Identify which are Bronsted-Lowry acids and which are Bronsted-Lowry bases for

$HCO_3^-(aq) + H_2O(l) \rightleftharpoons H_2CO_3(aq) + OH^-(aq)$

2%	1.	HCO_3^- acid	H_2O acid	H_2CO_3 base	OH^- base
11%	2.	HCO_3^- acid	H_2O base	H_2CO_3 base	OH^- acid
10%	3.	HCO_3^- acid	H_2O base	H_2CO_3 acid	OH^- base
4%	4.	HCO_3^- base	H_2O acid	H_2CO_3 base	OH^- acid
72%	5.	HCO_3^- base	H_2O acid	H_2CO_3 acid	OH^- base
1%	6.	HCO_3^- base	H_2O base	H_2CO_3 acid	OH^- acid

5.111 Principles of Chemical Science
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