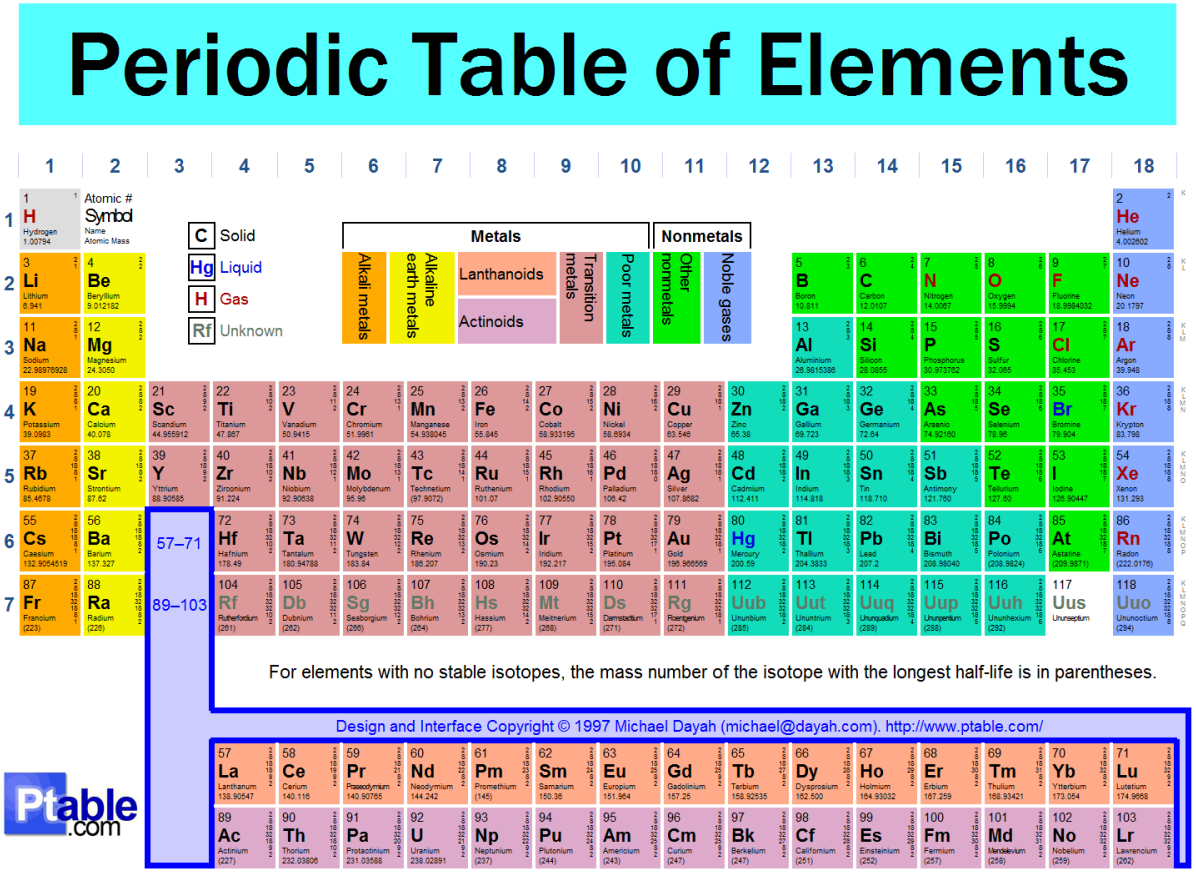
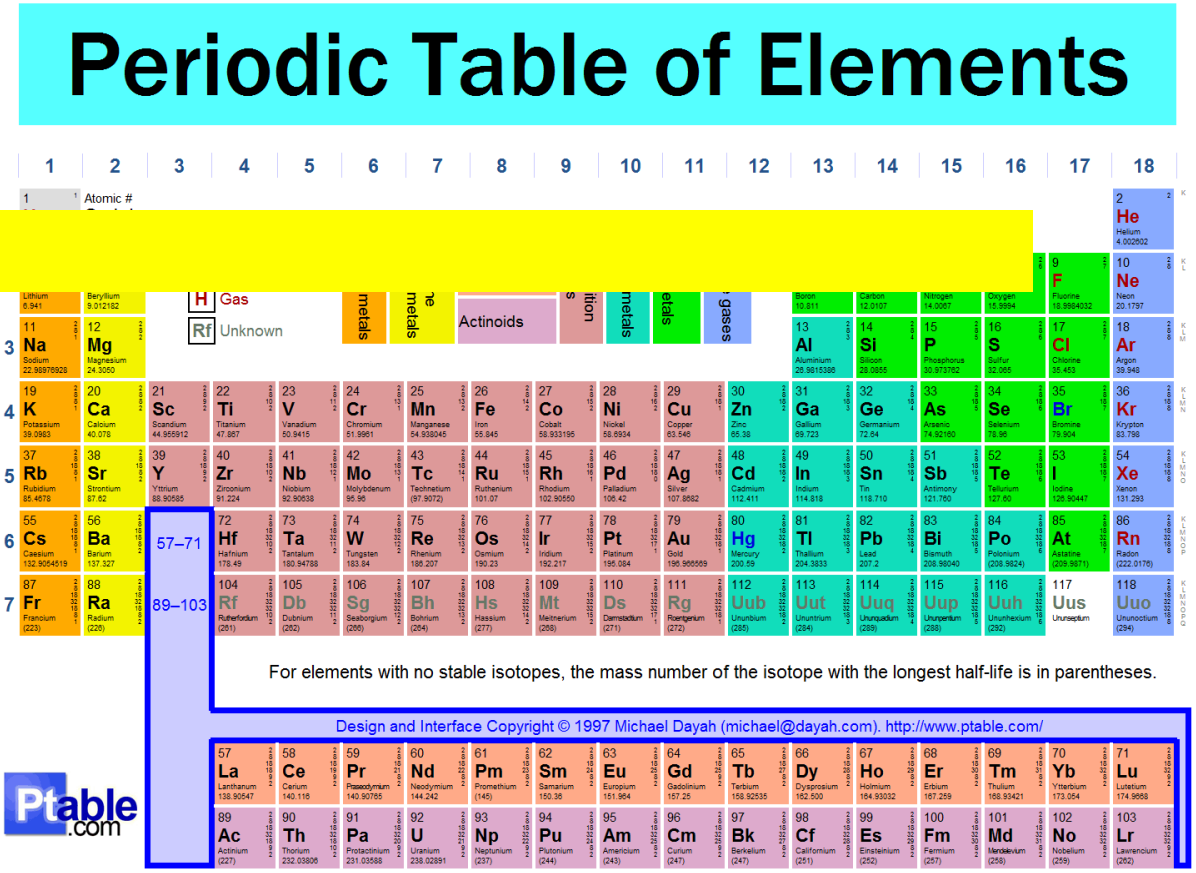
The symbol for an element is being changed to “Ah.” If the valence electron configuration for its homonuclear diatomic molecule (Ah_2) is $(\sigma 2s)^2(\sigma 2s^*)^2\ \pi 2px\ \pi 2py$ the element’s current symbol is:

1. Li
2. Be
3. B
4. C
5. N
6. O
7. F



The symbol for an element is being changed to "Ah." If the valence electron configuration for its homonuclear diatomic molecule (Ah_2) is $(\sigma 2s)^2(\sigma 2s^*)^2\ \pi 2px\ \pi 2py$ the element's current symbol is:

10%	1.	Li
8%	2.	Be
55% ✓	3.	B
14%	4.	C
5%	5.	N
6%	6.	O
1%	7.	F



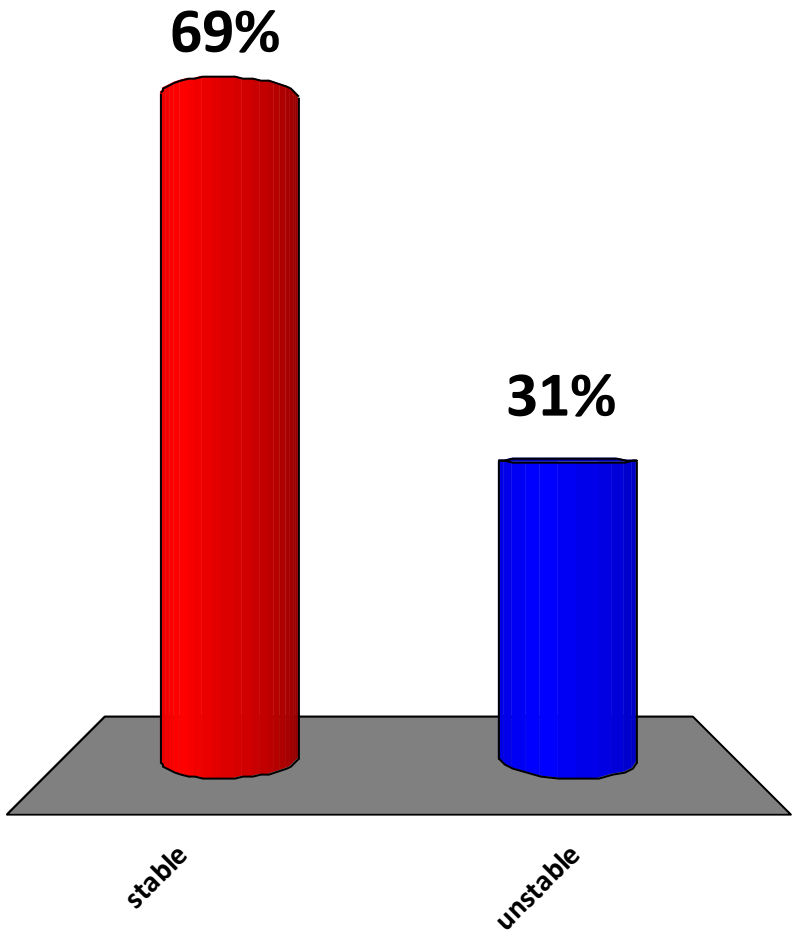
If $\Delta G_f^\circ < 0$, a compound is _____ relative to its elements.

1. stable
2. unstable

If $\Delta G_f^\circ < 0$, a compound is _____ relative to its elements.

✔ 1. stable

2. unstable



Predict the ΔS value for

$$2NaHCO_3(s) \rightarrow Na_2CO_3(s) + CO_2(g) + H_2O(g)$$

1. ΔS = 0 kJ/ K mol
2. ΔS = +0.334 kJ/K mol
3. ΔS = -334 kJ/K mol

Predict the ΔS value for

$$2NaHCO_3(s) \rightarrow Na_2CO_3(s) + CO_2(g) + H_2O(g)$$

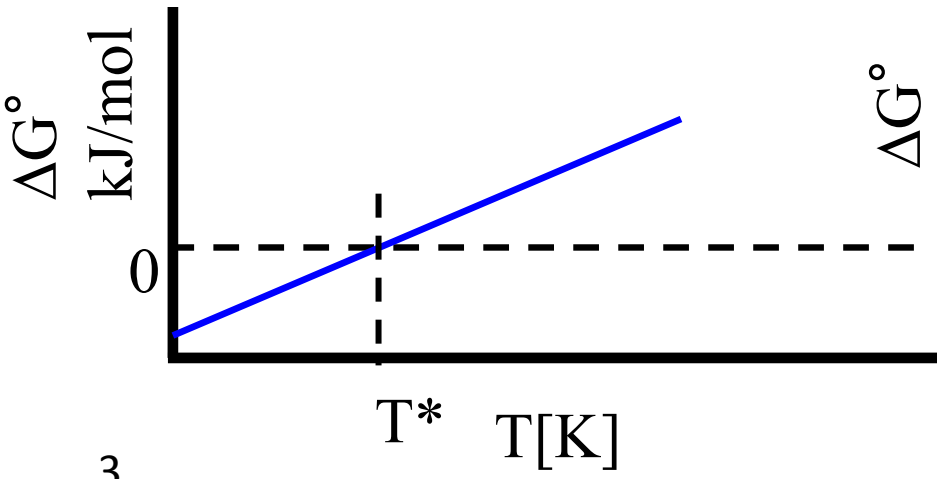
4% 1. ΔS = 0 kJ/ K mol

87%  2. ΔS = +0.334 kJ/K mol

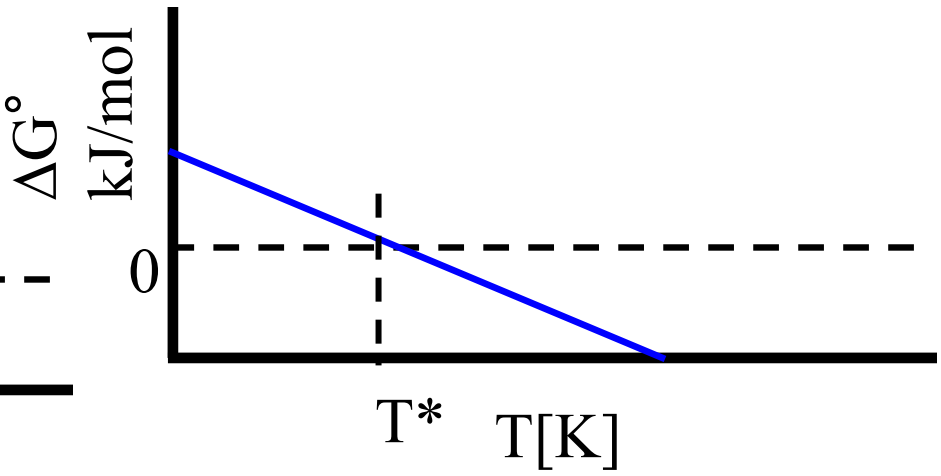
10% 3. ΔS = -334 kJ/K mol

Which is a possible plot if both ΔH and ΔS are negative?

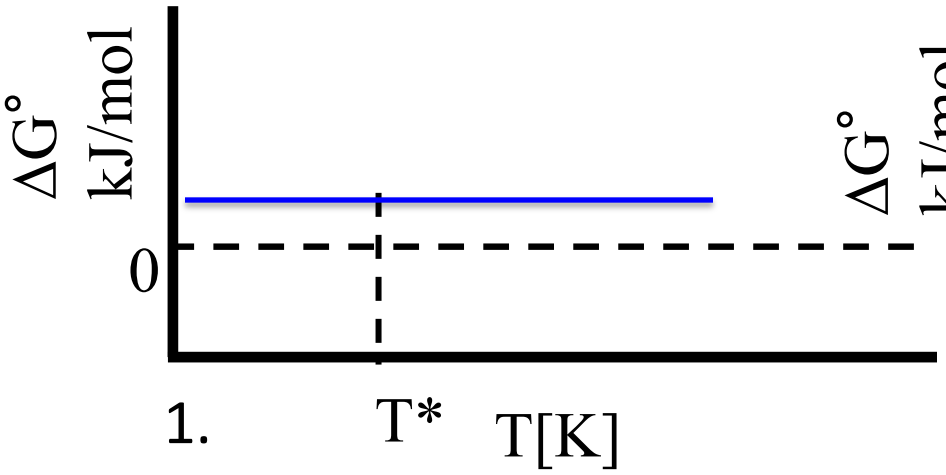
1.



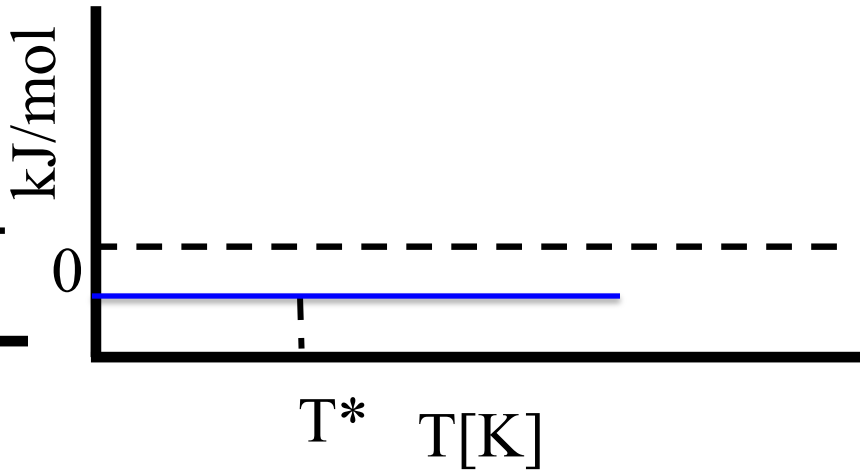
2.



3.



4.



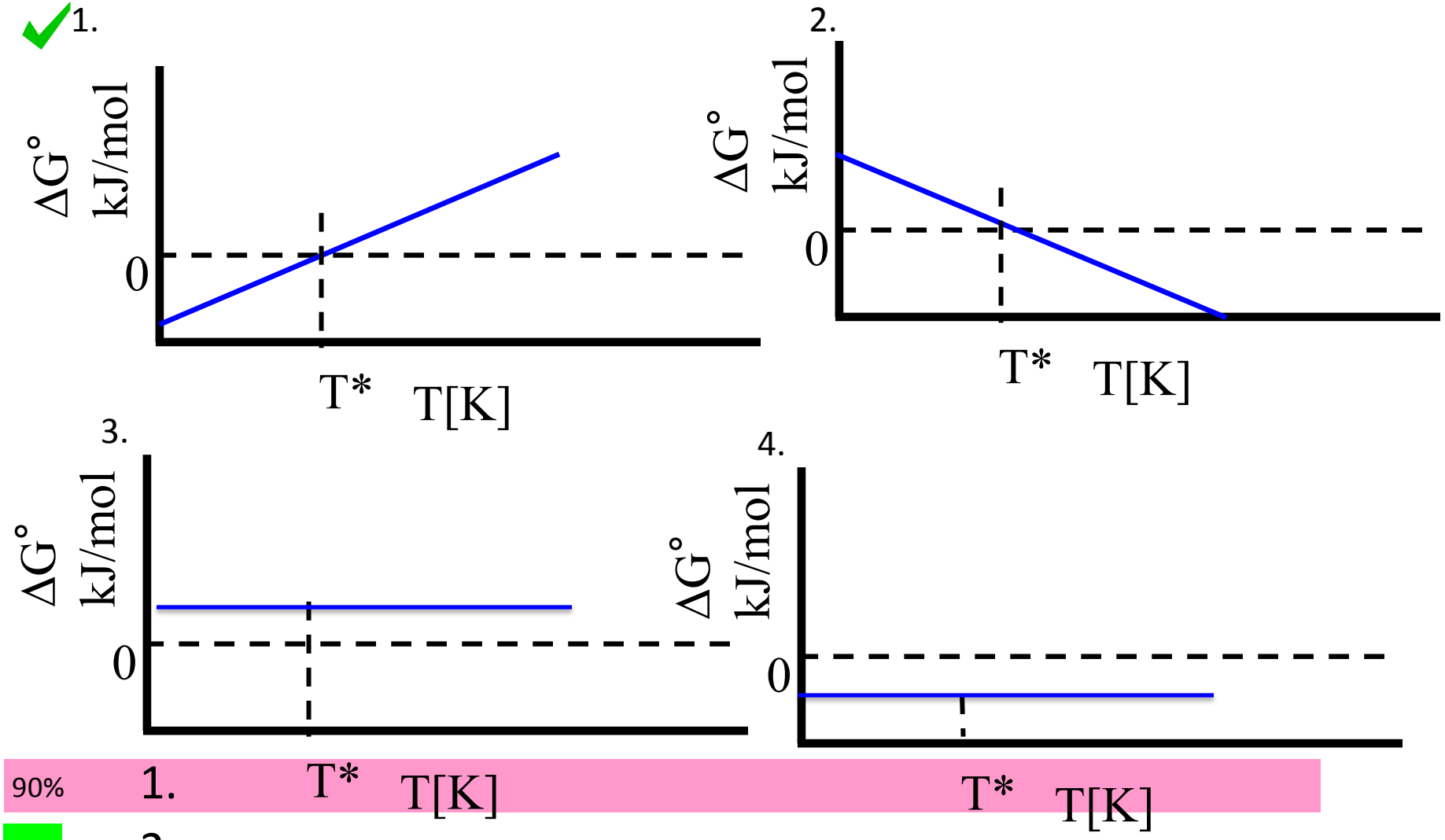
1.

2.

3.

4.

Which is a possible plot if both ΔH and ΔS are negative?



90%	1.
4%	2.
2%	3.
4%	4.

For a reaction with $\Delta H < 0$ and $\Delta S > 0$, the reaction will

1. Never be spontaneous
2. Always be spontaneous
3. Sometimes be spontaneous (depending on reaction temperature)

For a reaction with $\Delta H < 0$ and $\Delta S > 0$, the reaction will

5%

89%

6%

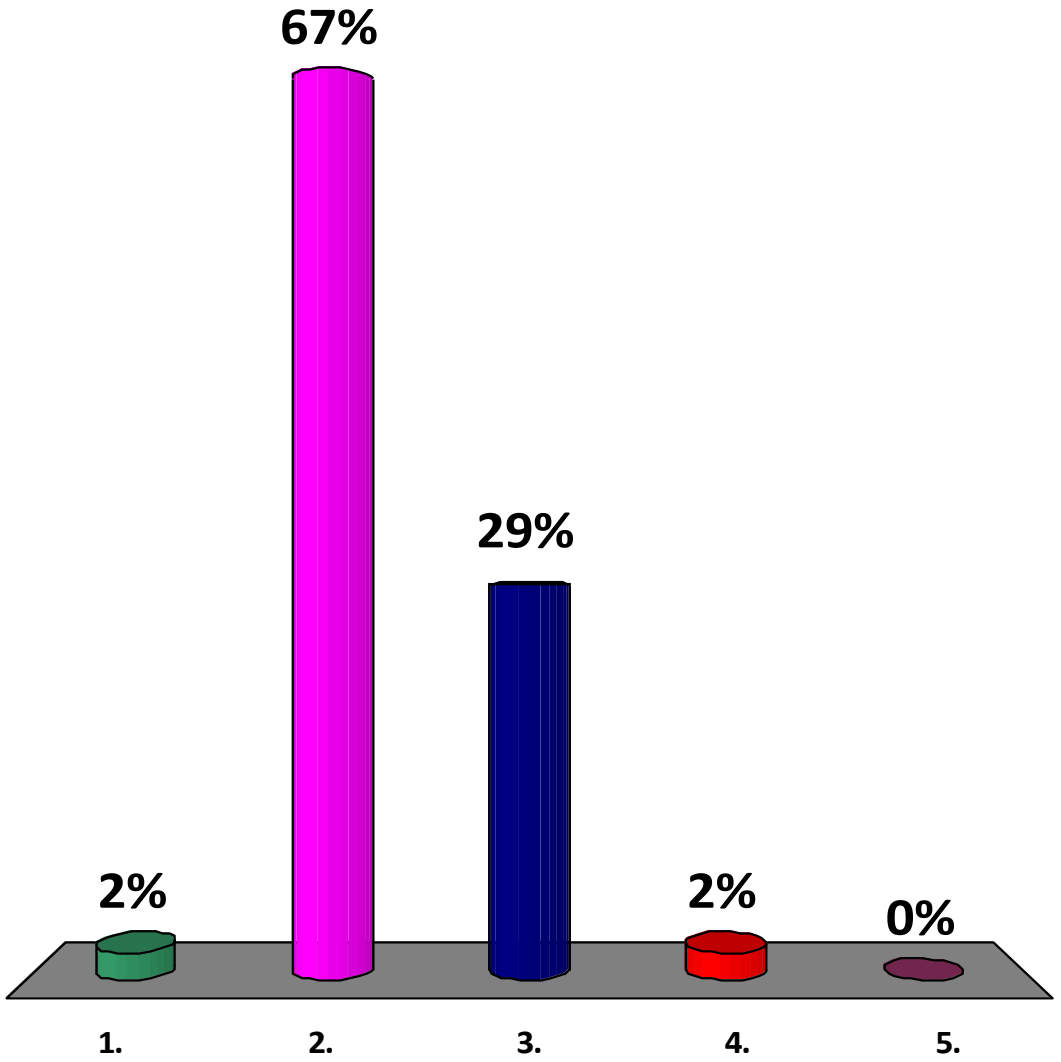
1. Never be spontaneous
2. Always be spontaneous 
3. Sometimes be spontaneous (depending on reaction temperature)

Based on the orientation shown, how many hydrogen bonds form between A and T bases?

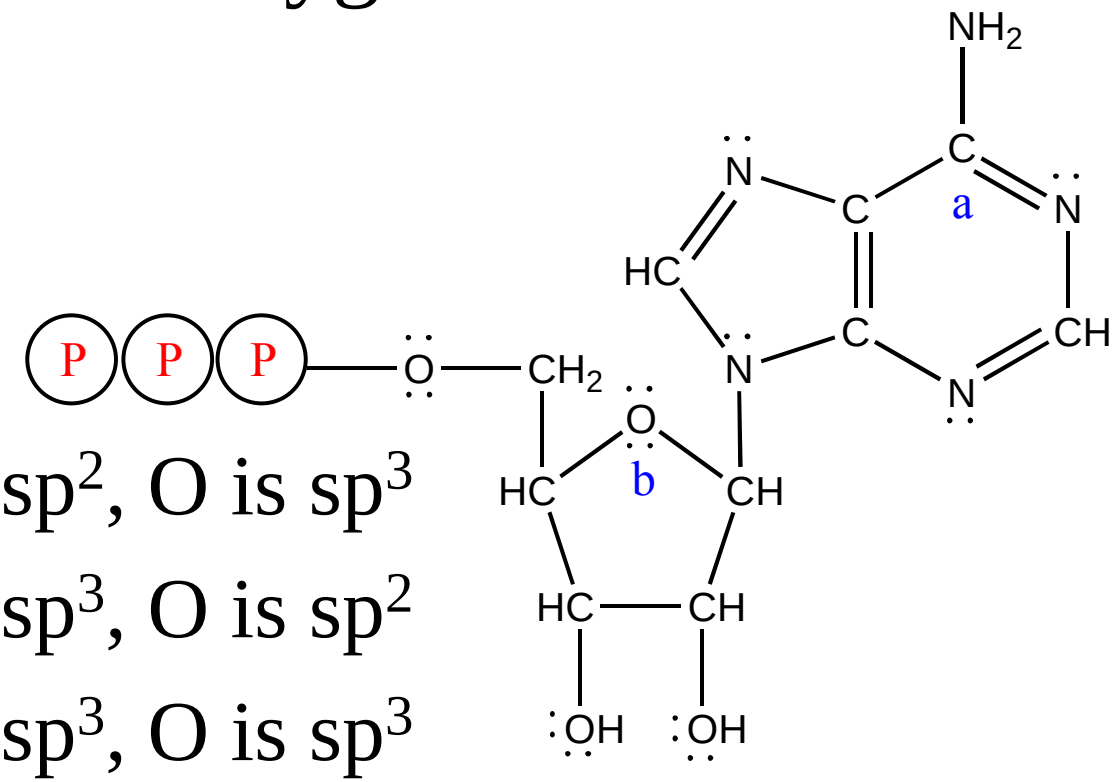
1. 1
2. 2
3. 3
4. 4
5. 0

Based on the orientation shown, how many hydrogen bonds form between A and T bases?

1. 1
2. 2
3. 3
4. 4
5. 0



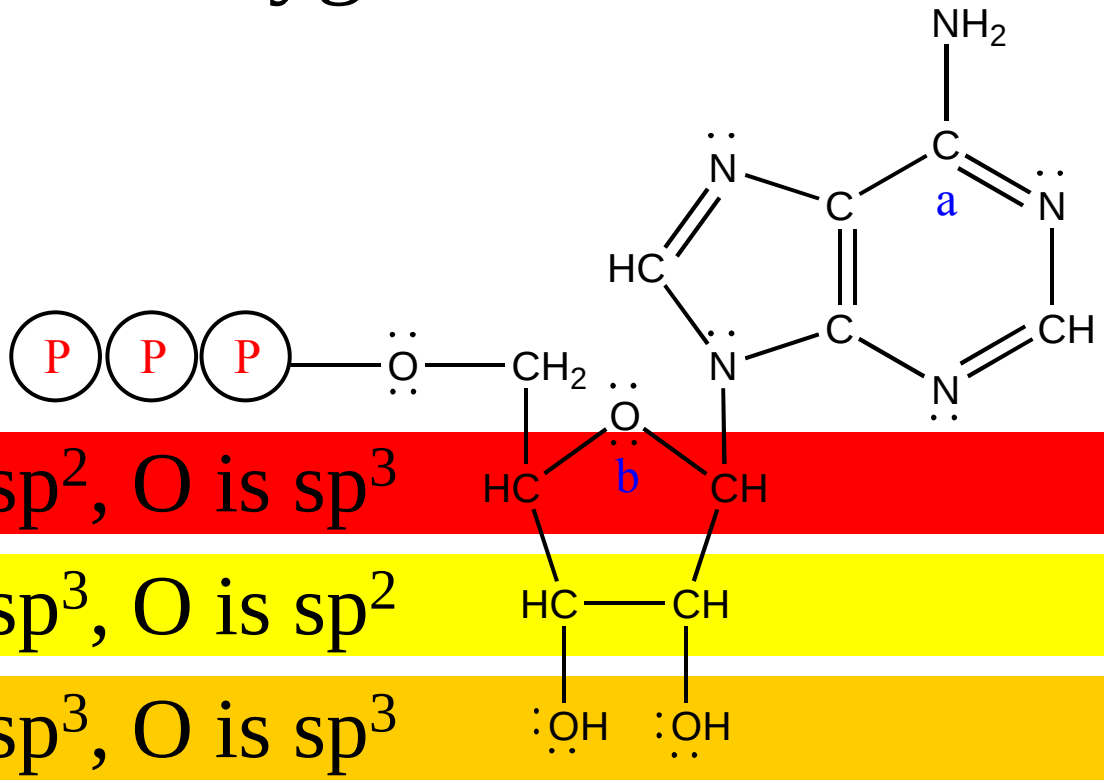
Name the hybridization of the specified carbon and oxygen atoms in ATP.



1. C is sp^2, O is sp^3
2. C is sp^3, O is sp^2
3. C is sp^3, O is sp^3
4. C is sp^2, O is sp^2
5. C is sp^2, O is not hybridized
6. C is sp^3, O is not hybridized

10

Name the hybridization of the specified carbon and oxygen atoms in ATP.



17% 1. C is sp^2, O is sp^3

17% 2. C is sp^3, O is sp^2

17% 3. C is sp^3, O is sp^3

17% 4. C is sp^2, O is sp^2

17% 5. C is sp^2, O is not hybridized

17% 6. C is sp^3, O is not hybridized

10

5.111 Principles of Chemical Science
Fall 2014