What is the hybridization of the O atoms below?

1. The O atoms are not hybridized.
2. sp
3. sp²
4. sp³
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If bonds are stronger in the products than in the reactants, ΔH is:

1. negative (exothermic rxn)
2. positive (exothermic rxn)
3. negative (endothermic rxn)
4. positive (endothermic rxn)
If bonds are stronger in the products than in the reactants, $\Delta H$ is:

1. negative (exothermic rxn) - 66% correct
2. positive (exothermic rxn) - 8%
3. negative (endothermic rxn) - 15%
4. positive (endothermic rxn) - 11%
Which answer has the correct number of significant figures?

1. - 4.48 kJ/mol
2. - 4.5 kJ/mol
3. - 4. kJ/mol
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[Bar chart showing 66% for answer 3, 27% for answer 2, and 7% for answer 1]
The oxidation of glucose
($\Delta H^\circ$ negative, $\Delta S^\circ$ positive)

1. is spontaneous at all temperatures.
2. is non-spontaneous at all temperatures.
3. Can be spontaneous OR non-spontaneous depending on the temperature.

(Hint: $\Delta G = \Delta H - T\Delta S$)
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$$2\text{H}_2\text{O}_2(l) \rightarrow 2\text{H}_2\text{O}(l) + \text{O}_2(g)$$

$\Delta S^\circ$ is predicted to be

1. negative
2. positive
3. zero
4. negative or positive depending on temperature
\[ 2\text{H}_2\text{O}_2(l) \rightarrow 2\text{H}_2\text{O}(l) + \text{O}_2(g) \]

\( \Delta S^\circ \) is predicted to be

1. negative
2. positive  
3. zero
4. negative or positive depending on temperature
If $\Delta G_f^\circ < 0$, a compound is ____________ relative to its elements.

1. stable
2. unstable
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1. stable
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