13. Consider the following reaction sequence.

Step 1 $H_2O_2(aq) + I^-(aq) \rightarrow H_2O(\ell) + IO^-(aq)$
Step 2 $H_2O_2(aq) + IO^-(aq) \rightarrow H_2O(\ell) + O_2(g) + I^-(aq)$

At the same temperature, Step 1 consumes $H_2O_2(aq)$ at a rate of 4.55×10^{22} molecules per second and Step 2 consumes $H_2O_2(aq)$ at a rate of 3.67×10^{24} molecules per second.

The only source of $IO^-(aq)$ for Step 2 comes from the reaction in Step 1.

Which one of the following statements identifies, with justification, the rate-determining step?

(a) Step 1, because it is the first step in the sequence.
(b) Step 2, because it is the last step in the sequence.
(c) Step 1, because it is the slower step in the sequence.
(d) Step 2, because it is the faster step in the sequence.