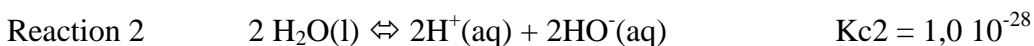
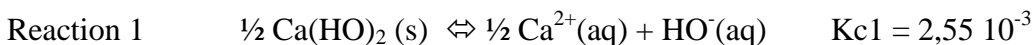


A) Which is the correct equilibrium expression for Reaction 1?

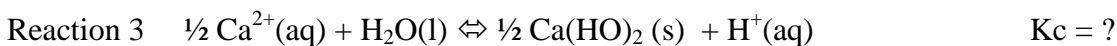


Answer: $K_{c1} = [\text{Ca}^{2+}]^{1/2} \cdot [\text{HO}^-]$ (Solids are not included in the equilibrium expression)

B) Which (if any) of the reactions is product favored?

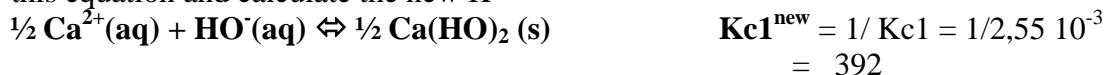
Answer: Neither React 1 nor React 2. (K_{c1} and K_{c2} are $<1 \Rightarrow$ reactant favored)

C) From the data above, determine the equilibrium constant for the following reaction:

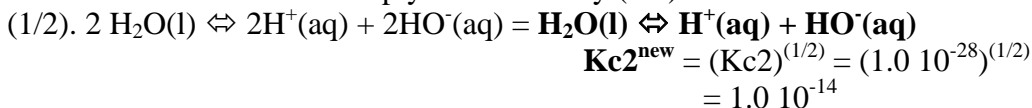


We need to rearrange React 1 and React 2, and use K_{c1} and K_{c2} to obtain K_c .

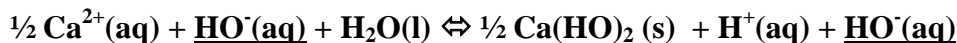
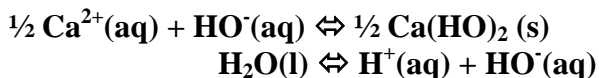
1. In reaction 1, Ca^{2+} ions are on the right and $\text{Ca}(\text{HO})_2$ is on the left. We need to invert this equation and calculate the new K



2. Only one molecule of water is on the left and only one proton is on the right on Reaction 3. We need to multiply Reaction 2 by (1/2).



3. The close analysis of the obtained reactions shows that by the simple addition of them we will obtain reaction 3.



If a compound is in both sides of the equation, we can cancel them out of the equation, and finally we obtain Reaction 3!!!

