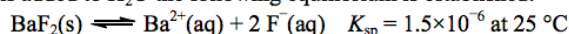
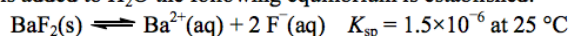


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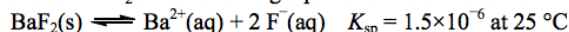
- Calculate the molar solubility of barium fluoride at $25 \text{ }^\circ\text{C}$.
- Explain how adding each of the following substances affects the solubility of BaF_2 in water.
 - $0.10 \text{ M Ba}(\text{NO}_3)_2$
 - 0.10 M HNO_3
- In an experiment to determine the K_{sp} of PbF_2 a student starts with $0.10 \text{ M Pb}(\text{NO}_3)_2$ and 0.10 M KF and uses the method of serial dilutions to find the lowest $[\text{Pb}^{2+}]$ and $[\text{F}^{-}]$ that form a precipitate when mixed. If the student uses the concentration of the ions in the combined solution to determine K_{sp} , will the value of K_{sp} calculated be too large, too small or just right? Explain.
 K_{sp} for $\text{PbF}_2 = 4.0 \times 10^{-8}$
- In a solution of 0.010 M barium nitrate and 0.010 M lead(II) nitrate, which will precipitate first, BaF_2 or PbF_2 , as $\text{NaF}(\text{s})$ is added? Assume volume changes are negligible. Explain (support your answer with calculations).
 - When the more soluble fluoride begins to precipitate, what is the concentration of the cation for the less soluble fluoride that remains in solution?

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