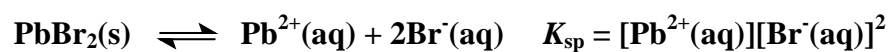


Marks
2

- Calculate the molar solubility of lead bromide given that its solubility product constant, K_{sp} , is 2.1×10^{-6} .

The dissolution equilibrium and solubility product are:



From the chemical equation, if s mol of dissolves in 1.0 L, $[\text{Pb}^{2+}(\text{aq})] = s$ M and $[\text{Br}^{-}(\text{aq})] = 2s$ M. Hence:

$$K_{sp} = (s)(2s)^2 = 4s^3 = 2.1 \times 10^{-6} \quad \text{or } s = 8.1 \times 10^{-3} \text{ M}$$

Answer: **$8.1 \times 10^{-3} \text{ M}$**