• What is the solubility of $Cu(OH)_2$ in mol L^{-1}? K_{sp} ($Cu(OH)_2$) is 1.6×10^{-19} at 25 °C.	**Marks 2**

The dissolution reaction and associated solubility product are:

$$\mathbf{Cu(OH)_2(s) \rightleftharpoons Cu^{2+}(aq) + 2OH^-(aq)} \qquad \mathbf{K_{sp} = [Cu^{2+}(aq)][OH^-(aq)]^2}$$

If x mol dissolve in one litre, $[Cu^{2+}(aq)] = x$ M and $[OH^-(aq)] = 2x$. Hence:

$$\mathbf{K_{sp} = (x)(2x)^2 = 4x^3 = 1.6 \times 10^{-19}}$$

$$\mathbf{x = 3.4 \times 10^{-7}\ M}$$

Answer: **3.4×10^{-7} M**