

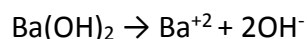
Answer on Question #69337, Chemistry, General Chemistry

How many moles of $\text{Ba}(\text{OH})_2$ are required to make 1.0 L of solution in which the OH concentration is 0.050 M?

- (1) 0.025
- (2) 0.050
- (3) 0.10
- (4) 2.0
- (5) 0.15

Solution:

Barium hydroxide is a strong base, that's why the dissociation process is:



The concentration of OH^- ions equals 0.050 M. It means that concentration of $\text{Ba}(\text{OH})_2$ is $0.050/2 = 0.025$ M, according to dissociation process.

If we know the molar concentration and the volume of solution, we can determine the number of moles of $\text{Ba}(\text{OH})_2$, using formulae:

$$C(\text{Ba}(\text{OH})_2) = \frac{n(\text{Ba}(\text{OH})_2)}{V}, \text{ where } n \text{ is number of moles; } V \text{ is volume of solution.}$$

So:

$$n(\text{Ba}(\text{OH})_2) = C(\text{Ba}(\text{OH})_2) \cdot V = 0.025 \cdot 1.0 = 0.025 \text{ (mol)}$$

Answer: (1) 0.025.

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