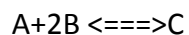


Answer on the question #43058, Chemistry, Physical Chemistry

Question:



For the above reaction, the equilibrium constant is 4. At equilibrium the concentrations of A and C are found to be 4 M each. What then is the concentration of B?

- a) 1 M
- b) 2 M
- c) 0.5 M
- d) 4 M

Solution:

According to the definition, the equilibrium constant of the reaction $A + 2B \rightleftharpoons C$ is:

$$K = \frac{[C]}{[A][B]^2}$$

Then, the concentration of B is:

$$[B] = \sqrt{\frac{[C]}{K[A]}} = \sqrt{\frac{4}{4 * 4}} = 0.5 \frac{\text{mol}}{\text{L}}$$

Answer: 0.5 mol/L