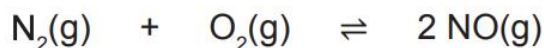


3. Consider the equilibrium system below.



If the equilibrium constant (K) for this reaction is 4.1×10^{-31} , which one of the following statements is **true** for the system where the initial partial pressures of nitrogen and oxygen were equal to each other?

- (a) Once equilibrium is reached, the reverse reaction rate is much faster than the forward reaction rate.
- (b) The partial pressure of $\text{NO}(\text{g})$ is less than the partial pressure of $\text{N}_2(\text{g})$.
- (c) The actual ratio of gaseous N_2 particles to NO gaseous particles is 1:2.
- (d) When nitrogen gas is injected into a vessel containing mostly oxygen gas, the partial pressure of oxygen decreases dramatically.