

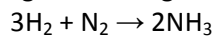
Answer on Question#38414-Chemistry-Inorganic Chemistry

Question

You have 5.4 moles of NH_3 after the reaction. What is the minimum number of moles of H_2 before the reaction?

Solution

The reaction between hydrogen and nitrogen resulting in ammonia formation is



As is clear from the chemical equation, for 2 moles of NH_3 to be formed, 3 moles of H_2 are needed.

Thus, we have the proportion:

2 moles NH_3 – 3 moles H_2

5.4 moles NH_3 – ? moles H_2

Hence, $n(\text{H}_2) = (5.4 \cdot 3) / 2 = 8.1$ moles

Answer: 8.1 moles