Question:

How many moles of NH3 can be produced from 28.0 mol of H2 and excess N2?

Solution

$$\begin{split} N_2 + 3H_2 &\rightarrow 2NH_3 \\ \frac{1}{3}N_2 + H_2 &\rightarrow \frac{2}{3}NH_3 \end{split}$$

This equation shows that we get $\frac{2}{3}$ moles of NH_3 from every mole of H_2 . Hence, if we have 28 moles of H_2 , $\frac{2}{3} * 28 = 18\frac{2}{3}$ moles of NH_3 .

Answer: 18,667 moles.

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