Question:

Ammonia is produced synthetically by the reaction below. How many moles of NH_3 are formed when 200.0 g of N_2 reacts with hydrogen?

$$N_2 + 3H_2 = 2NH_3$$
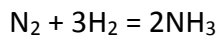
Answer:

First of all we have to find the amount of mol of N_2 which was used in the reaction.

We can find number of moles in a given mass by:

$$n = \frac{given\ mass}{Molecular\ Mass}$$

So, in our case $n = \frac{200}{28} = 7.143\ mol$

It is visible from the chemical reaction that from 1 mole of N_2 we can obtain 2 mol of NH_3, so from 7.143 mol of N_2 we will obtain **14.286 mol** of **NH_3**.