

## Answer on Question #42247 - Chemistry - Other

### Question:

Using the equation  $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$ , determine how many moles of ammonia are produced when 30 moles of hydrogen are consumed.

### Answer:

As is clear from the equation (the stoichiometric coefficients), when 3 moles of hydrogen are consumed 2 moles of ammonia are produced. So, we can write the proportion

3 moles ( $\text{H}_2$ ) – 2 moles ( $\text{NH}_3$ )

30 moles ( $\text{H}_2$ ) – X moles ( $\text{NH}_3$ ),

whence

$X = 30 \cdot 2/3 = \mathbf{20 \text{ moles}}$