

Answer on Question #60005, Chemistry / General Chemistry

1. Determine the number of moles of lithium hydroxide produced when .38g of lithium nitride reacts with water according to the following equation :
- $$\text{Li}_3\text{N} + 3\text{H}_2\text{O} \rightarrow \text{NH}_3 + 3\text{LiOH}$$

Solution:

$$n = \frac{m}{M}$$

$$M(\text{Li}_3\text{N}) = 35 \text{ g/mol}$$

$$n(\text{Li}_3\text{N}) = \frac{0.38\text{g}}{35 \text{ g/mol}} = 0.01 \text{ mol}$$

$$\frac{n(\text{Li}_3\text{N})}{n(\text{LiOH})} = \frac{1}{3}$$

$$n(\text{LiOH}) = \frac{n(\text{Li}_3\text{N}) \times 3}{1} = \frac{0.01\text{mol} \times 3}{1} = 0.03 \text{ mol}$$

Answer: $n = 0.03 \text{ mol}$.