

13. Nitric acid can be manufactured from the element nitrogen using the steps below.

Step	1	2	3	4
	$\text{N}_2 \rightarrow \text{NH}_3$	$\text{NH}_3 \rightarrow \text{NO}$	$\text{NO} \rightarrow \text{NO}_2$	$\text{NO}_2 \rightarrow \text{HNO}_3$

The smallest change in the oxidation number of nitrogen is found in

- (a) step 1.
- (b) step 2.
- (c) step 3.
- (d) step 4.