## Answer on Question \#50367, Chemistry, Other

A titration of $15.0 \mathrm{~cm}^{3}$ of household ammonia, $\mathrm{NH}_{3}$, required $3870 \mathrm{~cm}^{3}$ of 8.0 M HCl . Calculate the molarity of the ammonia.

## Solution:

$\mathrm{NH}_{3} \times \mathrm{H}_{2} \mathrm{O}+\mathrm{HCl} \rightarrow \mathrm{NH}_{4} \mathrm{Cl}+\mathrm{H}_{2} \mathrm{O}$

$$
\begin{gathered}
n_{1}=n_{2} \\
c_{1} \times V_{1}=c_{2} \times V_{2} \\
c_{2}=\frac{c_{1} \times V_{1}}{V_{2}} \\
c_{N H_{3}}=\frac{8.0 \mathrm{M} \times 3870 \mathrm{~cm}^{3}}{15 \mathrm{~cm}^{3}}=2064 \mathrm{M}
\end{gathered}
$$

## Answer:

molarity of the ammonia is $\mathbf{2 0 6 4} \mathrm{M}$

