Thoroughly Modern Milli-

The Molarity Connection
In a given reaction, 25.789 millimoles of Hydrochloric acid are used.

There are 176.84 mL in the total solution.
WHAT WE ARE LOOKING FOR

the molarity of the Hydrochloric acid in the solution
IN SCIENTIFIC NOTATION

25.789 millimoles HCl = 2.5789 \times 10^2 \text{ mmol HCl}

176.84 milliliters solution = 1.7684 \times 10^3 \text{ mL solution}
MOLARITY

Molarity \( (M) \) = moles * volume

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M \text{ of HCl} = \frac{\text{millimoles}}{\text{milliliters}} = \frac{2.5789 \times 10^2 \text{ mmol}}{1.7684 \times 10^3 \text{ mL}}
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M = 1.458 \times 10^{-1} \text{ mmol-mL}^{-1}
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\[
= 0.1458 \text{ } M
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