

**Example**

**A student measures a rectangular box with a ruler marked in increments of 0.1 cm. She records the measurements for length, width, and height as 12.45 cm, 5.6 cm, and 8.75 cm, respectively. Using these measurements, compute the volume of the box and express the result with the appropriate number of significant digits.**

The volume of the box can be calculated using the formula  $V = \ell wh$ .

$$\begin{aligned} V &= \ell wh \\ &= (12.45 \text{ cm})(5.6 \text{ cm})(8.75 \text{ cm}) \\ &= 610.05 \text{ cm}^3 \end{aligned}$$

The product of the three numbers should have the same number of significant digits as the number with the least number of significant digits. Since the width only has two significant digits, the product should only have two significant digits. Therefore the computed volume of the box with the appropriate number of significant digits is  $610 \text{ cm}^3$ .