3 The density of the material of a rectangular block is determined by measuring the mass and linear dimensions of the block. The list shows the results obtained, together with their uncertainties.

$$\text{mass} = (25.0 \pm 0.1)\,\text{g}$$

$$\text{length} = (5.00 \pm 0.01)\,\text{cm}$$

$$\text{width} = (2.00 \pm 0.01)\,\text{cm}$$

$$\text{height} = (1.00 \pm 0.01)\,\text{cm}$$

The density is calculated to be $2.50\,\text{g cm}^{-3}$.

What is the uncertainty in this result?

A $\pm 0.01\,\text{g cm}^{-3}$ **B** $\pm 0.02\,\text{g cm}^{-3}$ **C** $\pm 0.05\,\text{g cm}^{-3}$ **D** $\pm 0.13\,\text{g cm}^{-3}$