

- 1 A student makes the following measurements to determine the density of a plastic ruler.

$$\text{length} = 31.2 \pm 0.1 \text{ cm}$$

$$\text{cross-sectional area} = 0.32 \pm 0.02 \text{ cm}^2$$

$$\text{mass} = 13.78 \pm 0.01 \text{ g}$$

Which statement is correct?

- A The actual uncertainty of density is 0.03 g cm^{-3} .
- B The fractional uncertainty of density is 0.031.
- C The percentage uncertainty of density is 6.6 %.
- D The density of the plastic ruler is expressed as $1.38 \pm 0.07 \text{ g cm}^{-3}$.