

2 To find the density of a metal wire, a student makes the following measurements.

$$\text{length } l = 100 \pm 1 \text{ mm}$$

$$\text{radius } r = 2.50 \pm 0.05 \text{ mm}$$

$$\text{mass } m = 20.0 \pm 0.1 \text{ g}$$

He calculates the density using the formula $\text{density} = \frac{m}{\pi r^2 l}$.

What is the percentage uncertainty in his answer?

A $\pm 2.5\%$

B $\pm 3.5\%$

C $\pm 4.5\%$

D $\pm 5.5\%$