

5 A student determines the density ρ of steel by taking measurements from a steel wire.

$$\text{mass } m = 6.2 \pm 0.1 \text{ g}$$

$$\text{length } l = 25.0 \pm 0.1 \text{ cm}$$

$$\text{diameter } d = 2.00 \pm 0.01 \text{ mm}$$

He uses the equation $\rho = \frac{4m}{\pi d^2 l}$.

What is the percentage uncertainty in his calculated value of density?

- A** 1.1% **B** 1.8% **C** 2.5% **D** 3.0%