**5** The Young modulus of the material of a wire is to be found. The Young modulus $E$ is given by the equation below.

$$E = \frac{4Fl}{\pi d^2 x}$$

The wire is extended by a known force and the following measurements are made.

Which measurement has the largest effect on the uncertainty in the value of the calculated Young modulus?

| | measurement | symbol | value |
|---|---|---|---|
| **A** | length of wire before force applied | $l$ | $2.043 \pm 0.002$ m |
| **B** | diameter of wire | $d$ | $0.54 \pm 0.02$ mm |
| **C** | force applied | $F$ | $19.62 \pm 0.01$ N |
| **D** | extension of wire with force applied | $x$ | $5.2 \pm 0.2$ mm |

**Space for working**