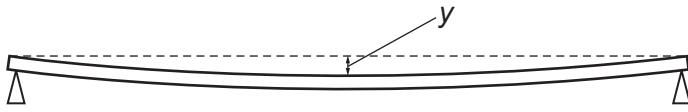


- 4 A metre rule is supported horizontally by two pivots as shown.



The vertical displacement  $y$  at the centre of the rule is given by the equation

$$y = \frac{kML^3}{wt^3}$$

where

$k$  is a constant,

$L$  is the distance between the pivots,

$M$  is the mass of the rule,

$t$  is the thickness of the rule and

$w$  is the width of the rule.

In an experiment, the following results are obtained:

$$L = (80.0 \pm 0.2) \text{ cm}$$

$$M = (60 \pm 1) \text{ g}$$

$$t = (6.0 \pm 0.1) \text{ mm}$$

$$w = (23.0 \pm 0.5) \text{ mm}.$$

Which measurement contributes most to the uncertainty in the calculated value of  $y$ ?

A  $L$

B  $M$

C  $t$

D  $w$