$$C \quad = \quad \sqrt{A^2 + B^2}$$

$$A = \ 5.3 \pm 0.2 \text{ cm}$$
$$B = 15.4 \pm 0.3 \text{ cm}$$

if $\quad C \ = \ \sqrt{A^2 + B^2} \quad , \quad$ what is $\quad \Delta C?$

$$\begin{aligned} \frac{\Delta A^2}{A^2} \quad &= \quad \frac{\Delta A}{A} + \frac{\Delta A}{A} \\ &= \quad \frac{0.2}{5.3} + \frac{0.2}{5.3} \\ &= \quad 0.075 \end{aligned}$$

$$\Delta A^2 \quad = \quad 0.075 A^2 \ = \ 2.1 \text{ cm}^2$$

$$A^2 \quad = \quad 28.1 \pm 2.1 \text{ cm}^2$$

$$B^2 \quad = \quad 237.2 \pm 9.2 \text{ cm}^2$$

$$C^2 \quad = \quad A^2 + B^2 \quad = \quad 265.3 \pm 11.3 \text{ cm}^2$$

$$\frac{\Delta C^2}{C^2} \quad = \quad \frac{11.3}{265.3} \ = \ 0.043$$

$$\begin{aligned} \frac{\Delta C}{C} \quad &= \quad \frac{1}{2} \frac{\Delta C^2}{C^2} \\ &= \quad 0.021 \end{aligned}$$

$$\Delta C \quad = \quad 0.02 \, C \ = \ 0.021 \, (16.3 \text{ cm}) \ = \ 0.3 \text{ cm}$$

$$C \quad = \quad 16.3 \pm 0.3 \text{ cm}$$