$$\delta h = \frac{\partial h}{\partial a} \cdot \delta a + \frac{\partial h}{\partial b} \cdot \delta b$$

$h = (a^2 + b^2)^{1/2}$

$u = a^2 + b^2$

$h = u^{1/2}$

$\frac{dh}{du} = \frac{1}{2} u^{-1/2}$ $\quad \frac{du}{da} = 2a$

$$\therefore \frac{dh}{da} = \frac{dh}{du} \cdot \frac{du}{da}$$

$$= \frac{1}{2} u^{-1/2} \times 2a$$

$$= \frac{1}{2} (a^2 + b^2)^{-1/2} \times 2a$$

$$= \frac{a}{\sqrt{a^2 + b^2}}$$

$$= \left(\frac{a}{\sqrt{a^2 + b^2}} \pm \frac{3a}{200} \right) + \left(\frac{b}{\sqrt{a^2 + b^2}} \pm \frac{3b}{200} \right)$$

$$= \frac{a^2}{\sqrt{a^2 + b^2}} \pm \frac{3}{200} + \frac{b^2}{\sqrt{a^2 + b^2}} \pm \frac{3}{200}$$

$$= \frac{a^2 + b^2}{\sqrt{a^2 + b^2}} \pm \left(\frac{3}{100} \right)$$

$h = \frac{a^2 + b^2}{\sqrt{a^2 + b^2}}$

$\therefore h$ increases and decreases by 3%

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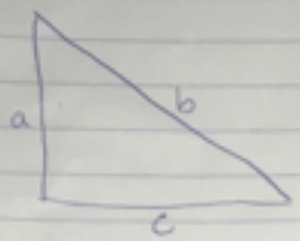

Recall that $A = \frac{1}{2}ba$

$$n = \sqrt{a^2 + b^2}$$

$$\delta A = \frac{\partial A}{\partial a} \cdot \delta a + \frac{\partial A}{\partial a} \cdot \delta b$$

$$= b/2 \cdot \delta a + a/2 \cdot \delta b$$

$$\delta B = \frac{\pm 1.5}{100} \times b$$

$$= \frac{\pm 3.b}{200}$$

$$\delta a = \frac{\pm 1.5}{100} \times a$$

$$= \pm \frac{3.a}{100}$$

$$= b/2 \cdot \pm 3b/100 + a/2 \pm 2a/200$$

$$= \frac{3ab}{2}\left(\frac{\pm 1}{200} + \pm \frac{1}{200}\right)$$

$$= \frac{3ab}{2}\left(\pm 1/100\right)$$

$$\text{Area} = \frac{ab}{2}$$

$$3A = \left(\pm 1/100\right)$$

$$A = \left(\pm 3/100\right)$$

$\therefore$ A increases and decreases by 3%