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1) The hypotenus of a right angle triangle is denoted by c, and the other two side are denoted as a and b if the possible error of measuring each of a and b is ± 1.5% find the madimum possible in tallulating
a) The area of the triangle and
b) The length of the hypotenus

A) $A = \frac{a \times b}{2}$ $\quad dA = \frac{dA}{dB} \cdot da + \frac{dA}{dB} \cdot db$

$\frac{dA}{da} = \frac{b}{2}, \quad \frac{dA}{db} = \frac{a}{2} \quad dA = \pm \frac{3a}{200} \quad dB \quad \frac{-3b}{200}$

$dA = \frac{b}{2}\left(\pm \frac{3a}{100}\right) + \frac{a}{2}\left(\frac{3b}{400}\right)$

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

$dA = 3\%$ of A

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

$dh = \frac{db}{da} + \frac{db}{db} \quad db$

$\frac{db}{da} = \frac{2a}{2}(a^2 + b^2)^{-1/2}$ $\quad \frac{a}{\sqrt{a^2 + b^2}}$

$\frac{dh}{db} = \frac{2b}{2}(a^2 + b^2)^{-1/2}$ $\quad \frac{b}{\sqrt{a^2 + b^2}}$

$$da = \frac{\pm 3a}{200}$$

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

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

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

$$= \pm \frac{3}{100} \sqrt{a^2+b^2} \quad \pm \frac{3}{200}$$

$$dh = 1.5\% \; \pm h$$