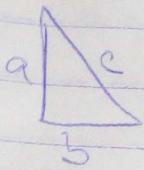


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The hyp of a  $\Delta$  is deduced as  $c$  and the error's are  $a$  and  $b$  is  $\pm 1.5\%$ . Find the max error (b) length of hyp

Sol



$$\text{area} = \frac{1}{2}bh = \frac{1}{2}ba = \frac{ba}{2}$$

$$\frac{\delta A}{A} = \frac{b}{a} \quad \frac{dA}{A} = \frac{a}{b}$$

$$dA = \frac{dA}{da} \cdot da + \frac{dA}{db} \cdot db$$

$$\pm 1.5\% = \frac{3}{2} \cdot \frac{15a}{100} + \frac{a}{2} \times \frac{1.5b}{100}$$

$$= \frac{31}{2}$$

$$\frac{b}{2} \left( \frac{39}{200} + \frac{a}{2} \left( \frac{35}{200} \right) \right)$$

$$= \frac{1ab}{2} \left( \frac{3}{300} + \frac{3}{300} \right)$$

$\delta A = 3$  Percent of  $A$

$$c = \sqrt{a^2 + b^2} = (a^2 + b^2)^{\frac{1}{2}}$$

$$\frac{dc}{c} = \frac{1}{2} (a^2 + b^2)^{-\frac{1}{2}} (2a)$$

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

$$\frac{dc}{ds} = \frac{1}{2} (a^2 + s^2)^{-\frac{1}{2}} (2s)$$

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

$$S_a = \pm \frac{3a}{200} \quad \frac{ds}{s} = \pm \frac{3s}{200}$$

$$d = \frac{dc}{da} da + \frac{dr}{ds} ds$$

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

$$\left( \frac{3a^2}{(200 \times \sqrt{a^2 + s^2})} \right) + \left( \frac{3s^2}{(\sqrt{a^2 + s^2} \times 200)} \right)$$

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

$$= \frac{3}{200} \left( \frac{c^2}{c} \right)$$

$$dc = 1.5\% \text{ of } c$$