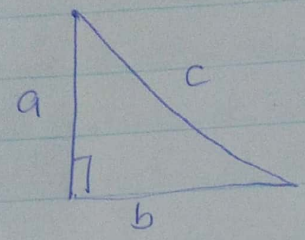
Bakare sharafadeen omogbolahan.
17/6NG04/014
Electrical electronics Engineering.



① $A = \frac{1}{2}ab$ $\delta a = \pm 1.5\%$ of a $\delta b = \pm 1.5\%$ of b

$\frac{\partial A}{\partial a} = b/2$, $\frac{\partial A}{\partial b} = a/2$

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

$\partial A = b/2 \left[\pm \frac{1.5a}{100}\right] + a/2 \left[\frac{\pm 1.5b}{100}\right].$

$\partial A = \pm \frac{ab}{2}\left[\left[\frac{\pm 1.5}{100}\right] + \left[\frac{\pm 1.5}{100}\right]\right].$

$\partial A \pm \frac{ab}{2}\left[\frac{1.5 + 1.5}{100}\right].$

$\pm \frac{ab}{2}\left[3/100\right].$

$\partial A = 3$ Percent of A

② $c = \sqrt{a^2 + b^2} = [a^2 + b^2]^{1/2}$

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

$\frac{\partial c}{\partial a} = 1/2 [a^2 + b^2]^{-1/2} [2a] = a/\sqrt{a^2 + b^2}$

$\frac{\partial c}{\partial b} = 1/2 [a^2 + b^2]^{-1/2} [2b] = b/\sqrt{a^2 + b^2}$

also $\partial a = \pm \frac{3}{2a}$, $\partial b = \pm \frac{3}{2b}$

$$\partial c = \frac{a}{\sqrt{a^2+b^2}}\left[\frac{\pm 3a}{200}\right] + \frac{b}{\sqrt{a^2+b^2}}\left[\frac{\pm 3b}{200}\right].$$

$$\partial c = \pm 3/200\left[\frac{a^2}{\sqrt{a^2+b^2}} + \frac{b^2}{\sqrt{a^2+b^2}}\right].$$

$$\partial c = \pm \frac{3}{200}\left[\frac{a^2+b^2}{\sqrt{a^2+b^2}}\right].$$

$$\partial c = \pm 3/200\left[a^2+b^2\,{}^{1-1/2}\right].$$

$$\partial c = \pm 3/200\left[\sqrt{a^2+b^2}\right].$$

$$\partial c = \pm 3/200 \text{ of } c.$$

$$\partial c = 1.5\% \text{ of } c.$$