Ejemplo

$$\boldsymbol{A = ab}$$

$$a = (a_0 \pm \Delta a)\ Ud.$$

$$b = (b_0 \pm \Delta b)\ Ud.$$

$$A_0 = f(a_0, b_0)$$

$$A_0 = a_0 b_0$$

$$\Delta A = \sqrt{\left(\left.\frac{\partial f(a,b)}{\partial a}\right|_{a_0, b_0}\right)^2 \Delta a^2 + \left(\left.\frac{\partial f(a,b)}{\partial b}\right|_{a_0, b_0}\right)^2 \Delta b^2}$$

$$\frac{\partial f(a,b)}{\partial a} = b$$

$$\left.\frac{\partial f(a,b)}{\partial a}\right|_{a_0, b_0} = b_0$$

$$\Delta A = \sqrt{(b_0)^2 \Delta a^2 + (a_0)^2 \Delta b^2}$$

Miren qué interesante!!

$${\varepsilon_{rA}}^2 = \left|\frac{\Delta A}{A_0}\right|^2 = \left|\frac{\Delta A}{a_0 b_0}\right|^2 = \frac{(b_0)^2 \Delta a^2}{(a_0 b_0)^2} + \frac{(a_0)^2 \Delta b^2}{(a_0 b_0)^2} = \frac{\Delta a^2}{{a_0}^2} + \frac{\Delta b^2}{{b_0}^2} = {\varepsilon_{ra}}^2 + {\varepsilon_{rb}}^2$$

$${\varepsilon_{rA}}^2 = {\varepsilon_{ra}}^2 + {\varepsilon_{rb}}^2$$

Ejemplo

$$\boldsymbol{W = 2xy^2} \rightarrow W = (W_0 \pm \Delta W)\ Ud.$$

$$x = (x_0 \pm \Delta x)\ Ud.$$

$$y = (y_0 \pm \Delta y)\ Ud.$$

$$\boldsymbol{W_0 = 2x_0{y_0}^2}$$

$$\frac{\partial f(x,y)}{\partial x} = \boldsymbol{2y^2} \rightarrow \left.\frac{\partial f(x,y)}{\partial x}\right|_{x_0,\ y_{0,\dots}} = \boldsymbol{2{y_0}^2}$$

$$\frac{\partial f(x,y)}{\partial y} = \boldsymbol{4xy} \rightarrow \left.\frac{\partial f(x,y)}{\partial y}\right|_{x_0,\ y_{0,\dots}} = \boldsymbol{4x_0y_0}$$

$$\Delta W = \sqrt{(\boldsymbol{2{y_0}^2})^2\Delta x^2 + (\boldsymbol{4x_0y_0})^2\Delta y^2}$$