$$y = \frac{kwd^4}{t^3}$$

$$\frac{\partial y}{\partial w} = \frac{kd^4}{t^3} \qquad \delta w = \frac{3w}{100}$$

$$\frac{\partial y}{\partial d} = \frac{4kwd^3}{t^3} \qquad \delta d = \frac{2.5d}{100}$$

$$\frac{\partial y}{\partial t} = \frac{-3kwd^4}{t^4} \qquad \delta t = \frac{4t}{100}$$

$$\delta y = \frac{dy}{\partial w}\delta w + \frac{\partial y}{\partial d}\delta d + \frac{\partial y}{\partial t}\delta t$$

$$\delta y = \frac{kd^4}{t^3}\left(\frac{3w}{100}\right) + \left(\frac{4kwd^3}{t^3}\right)\left(\frac{2.5d}{100}\right) + \left(\frac{-3kwd^4}{t^4}\right)\left(\frac{4t}{100}\right)$$

$$\delta y = \frac{kwd^4}{t^3}\left(\frac{3}{100}\right) + \frac{kwd^4}{t^3}\left(\frac{10}{100}\right) - \frac{kwd^4}{t^3}\left(\frac{12}{100}\right)$$

$$\delta y = \frac{kwd^4}{t^3}\left(\frac{3}{100} * \frac{10}{100} - \frac{12}{100}\right)$$

$$\delta y = \frac{kwd^4}{t^3}\left(\frac{1}{100}\right)$$

$$\delta y = 1\%\, y$$

$$\delta y = 1\% \text{ of } y //$$

Name: Yerwang P. Shambo
Matric No: 16lENGra1020
Course: ENG 281.
Dept: Chemical Engineering

Maths 3 Assignment.

$$P = \frac{E^2}{R}$$

$$\frac{\partial P}{\partial E} = \frac{2E}{R} \qquad \delta E = -5$$

$$\frac{\partial P}{\partial R} = \frac{-E^2}{R^2} \qquad \delta R = 0.2 = \frac{1}{5}$$

$$\delta P = \frac{\partial P}{\partial E}\delta E + \frac{\partial P}{\partial R}\delta R$$

$$\delta P = \frac{2E}{R}(-5) + \left(\frac{-E^2}{R^2}\right)\left(\frac{1}{5}\right)$$

$$\delta P = \frac{-10E}{R} - \frac{E^2}{5R^2}$$

$$\delta P = \frac{-E}{R}\left(-10 - \frac{E}{5R}\right)$$

$$\delta P = \left(+10 + \frac{200}{5\times 5}\right)$$

$$\delta P = -25(10+5)$$

$$\delta P = -375 \text{ Newtons}$$