

Akinboban Oluwamodupe Esther

161MHS011029

Computer Engineering

Engineering Mathematics

ENG 235

$$1) P = \frac{E^2}{R}$$

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

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

$E = 200$ volts and $R = 8$ Ohms

$$\frac{\partial P}{\partial E} = \frac{2 \times 200}{8} = 50$$

$$\frac{\partial P}{\partial R} = -E^2 R^{-2} = \frac{-E^2}{R^2} = \frac{-(200)^2}{(8)^2} = -625$$

$\delta E = -5$ volts and $\delta R = 0.2$ Ohms

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

$$\delta P = 50(-5) + (-625)(0.2)$$

$$\delta P = -250 - 125$$

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

$$(2) y = \frac{15wd^4}{t^3} = 15wd^4t^{-3}$$

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