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1. $P = \frac{E^2}{R}$; $E = 200\,V$, $R = 8\,\Omega$, $\partial E = -5\,v$,

$\partial R = 0.2\,\Omega$

$$\partial P = \frac{\partial P}{\partial E}\cdot\partial E + \frac{\partial P}{\partial R}\cdot\partial R = \frac{2E}{R}\partial E + \left(\frac{-E^2}{R^2}\right)\partial R$$

$$= \frac{2 \times 200 \times (-5)}{8} - \left[\frac{200^2}{8^2} \times 0.2\right]$$

$$= -250 - 125$$

$$\partial P = -375\,W_{//}$$

2. $y = \frac{KWd^4}{t^3}$

$\partial w = 3\%$, $\partial d = 2\frac{1}{2}\%$, $\partial = 4\%$

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

$$= \frac{Kd^4}{t^3}\partial w + \frac{4Kwd^3}{t^3}\partial d + \left(\frac{-3Kwd^4}{t^4}\right)\partial t$$

$$= \frac{Kd^4}{t^3}(3w\%) + 4\frac{Kwd^3}{t^3}\left(\frac{5}{2}d\%\right) - \frac{3Kwd^4}{t^4}(4t\%)$$

$$= \frac{3}{100}\frac{Kwd^4}{t^3} + \frac{10}{100}\frac{Kwd^4}{t^3} - \frac{12Kwd^4}{100t^3}$$

$$= \frac{k w d^4}{t^3} \left(\frac{3}{100} + \frac{10}{100} - \frac{12}{100} \right)$$

$$= \frac{1}{100} \frac{k w d^4}{t^3}$$

$$= 1\% \, y_4$$