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① $P = \frac{E^2}{R}$

$E = 200v$, $R = 8\Omega$, $\Delta E = -5V$, $\Delta R = 0.2\Omega$

$\Delta P = \frac{dP}{dE} \cdot \Delta E + \frac{dP}{dR} \cdot \Delta R$

$\frac{dP}{dE} = \frac{2E}{R}$ $\frac{dP}{dR} = \frac{-E^2}{R^2}$

$\Delta P = \frac{2(200)(-5)}{8} + \frac{-(200)}{8^2} \cdot (0.2)$

$\Delta P = -250 - 125$

$\Delta P = -375w$

Change in P is $-375w$

② $y = \frac{kwd^4}{t^3}$

$\Delta w = \frac{3}{100} w$ $\Delta d = \frac{2.5}{100} d$

$\Delta t = \frac{4}{100} t$

$dy/dw = \frac{kd^4}{t^3}$ $dy/dd = \frac{4kwd^3}{t^3}$ $dy/dt = \frac{-3kwd^4}{t^4}$

$\Delta y = dy/dw \cdot \Delta w + dy/dd \cdot \Delta d + dy/dt \cdot \Delta t$

$\Delta y = \frac{kd^4}{t^3} \cdot \frac{3}{100} w + \frac{4kwd^3}{t^3} \cdot \frac{2.5}{100} d - \frac{3kwd^4}{t^3} \cdot \frac{4}{100}$

$\Delta y = \frac{kwd^4}{t^3} \cdot \frac{3}{100} + \frac{kwd^4}{t^3} \cdot \frac{(2.5) \cdot 4}{100} - \frac{kwd^4}{t^3} \cdot \frac{12}{100}$

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

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$$\Delta y = \frac{k w d^4}{t^3}\left(\frac{1}{100}\right)$$

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

$$\therefore \Delta y = \frac{1}{100} y = 1\% y$$

Change in $y = \pm 1\%$

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