$\delta d = 5/2 \div 100$ of d.

$= \frac{5}{2} \times \frac{1}{100} = \frac{5d}{200}$.

$\partial t = \frac{4}{100}$ of $t = \frac{4t}{100}$.

$$\partial y = 0 + \frac{kd^4}{t^3} \times \frac{300}{100} + \frac{4d^3kw}{t^3} \times \frac{5d}{200} + \frac{-3kwd^4}{t^4} \times \frac{4t}{100}$$

$$\partial y = \frac{kd^4w}{t^3} \times \left(\frac{3}{100}\right) + \frac{d^4kw}{t^3} \times \left(\frac{20}{200}\right) - \frac{kwd^4}{t^3} \times \left(\frac{12}{100}\right).$$

$$\partial y = \frac{kwd^4}{t^3}\left[\frac{3}{100} + \frac{20}{200} - \frac{12}{100}\right.$$

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

$$= y\left(\frac{1}{100}\right).$$

Percent change in y = ± 1 percent of y.

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Electrical/Electronics Engineering.

1. $P = \frac{E^2}{r}$; $P = E^2 R^{-1}$

$\delta p = \frac{\partial p}{\partial E} \cdot \partial E + \frac{\partial p}{\partial r} \cdot \partial r.$

$\frac{\partial p}{\partial E} \cdot 2ER^{-1} = \frac{2E}{R}$, $\frac{\partial P}{\partial R} = -E^2 R^{-2} = \frac{-E^2}{R^2}.$

$\delta p = \frac{2E}{R} \cdot \partial E + -\frac{(E^2)}{R^2} \cdot \delta R.$

$\delta p = \frac{2 \times 200}{8} \cdot (-5) + -\frac{(200)^2}{8^2} \cdot 0.2.$

$\partial p = -\frac{2000}{8} - \frac{8000}{64} = -250 - 125 = -375$ watts

$\therefore \partial p$ (change in P) $= -375$ watts

2. $y = \frac{kwd^4}{t^3}$; $y = kwd^4 t^{-3}.$

$\delta y = \frac{dy}{dk} \cdot dk + \frac{dy}{dw} \cdot \partial w + \frac{\partial y}{dd} + \delta d + \frac{dy}{dt} \cdot \partial t.$

$\frac{dy}{dk} = \frac{wd^4}{t^3}$, $\frac{dy}{dw} = \frac{kd^4}{t^3}$, $\frac{dy}{dd} = \frac{4d^3 kw}{t^3}.$

$\frac{dy}{dt} = -3kwd^4 t^{-4} = \frac{-3kwd^4}{t^4}.$

$\delta w = \frac{3}{100}$ of $w = \frac{3w}{100}.$