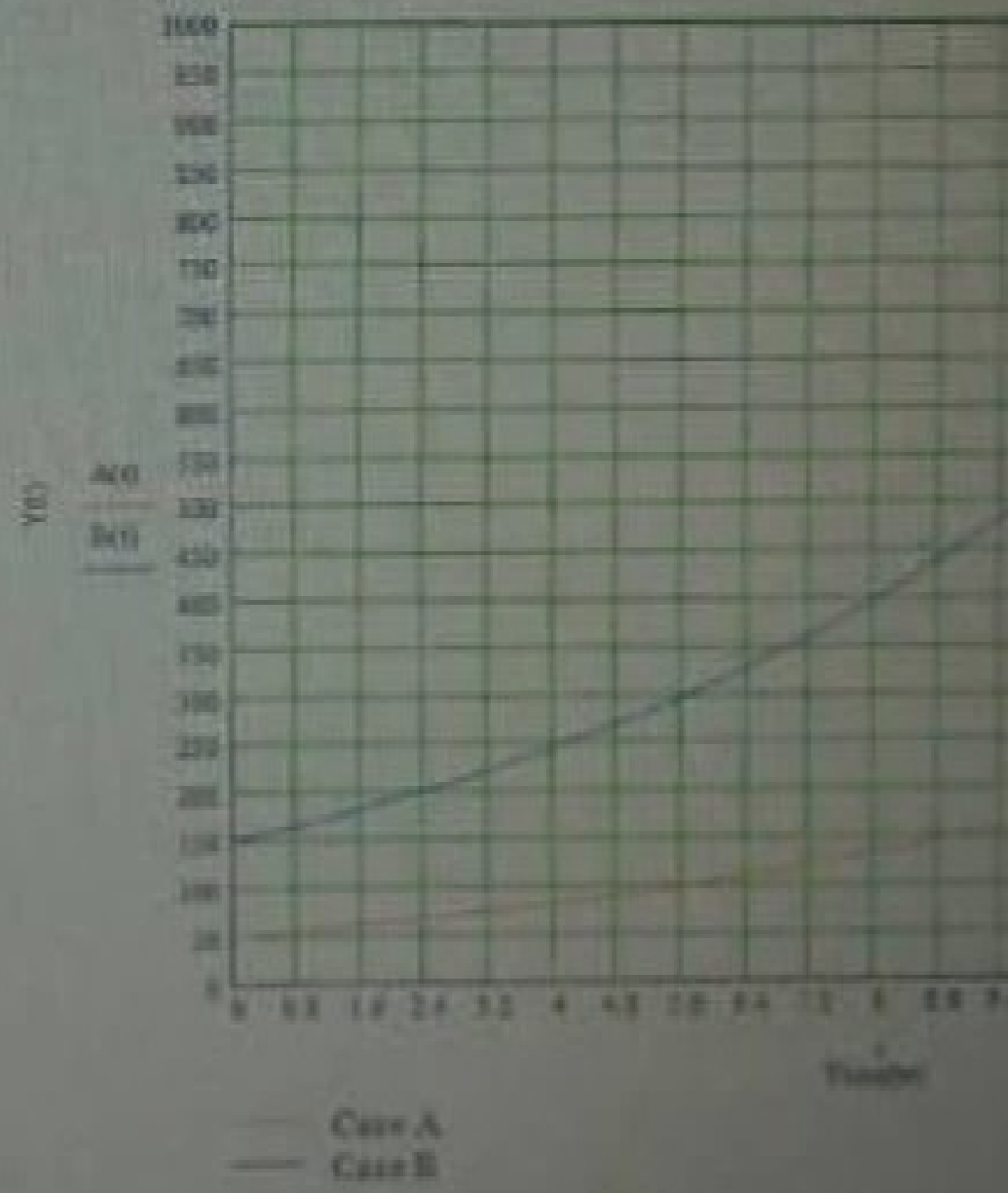


$$f(t) = 150 \cdot \exp(0.122 \cdot t)$$

$f(t) =$

150
169.463
191.452
216.293
244.358
276.065
311.886
352.354
398.073
449.720
508.078
574.003
648.483
732.626
827.687
935.083



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Using $y = y_0 e^{kt}$

$$y = 3y_0$$

$$\therefore \frac{y}{y_0} = 3$$

which means

$$\frac{y}{y_0} = e^{kt} = 3 \text{ when } t = 9$$

$$\text{and } \frac{y}{y_0} = e^{kt} = 9 \text{ when } t = 18$$

For Cases A and B

$$y_0 = 50 \text{ --- (A)}$$

$$y_0 = 150 \text{ --- (B)}$$

$$\therefore y = 50e^{kt} \text{ --- (A)}$$

$$y = 150e^{kt} \text{ --- (B)}$$

Recalling that $3 = e^{kt}$

$$\ln 3 = kt \text{ --- (A)}$$

$$\ln 3 = 9k$$

$$k = \frac{\ln 3}{9} = 0.122$$

Recall also ~~the~~ at $t = 18$

$$q = e^{kt}$$

$$\ln q = 18k$$

$$k = \frac{\ln q}{18}$$

$$k = 0.122$$

So in both cases k is the same

i.e. ~~$y = 50e^{0.122t}$~~

$$y = 50e^{0.122t}$$

$$y = 150e^{0.122t}$$

$$- - - (A)$$

Using these, we plot our graph