$t := 0, 1 .. 15$

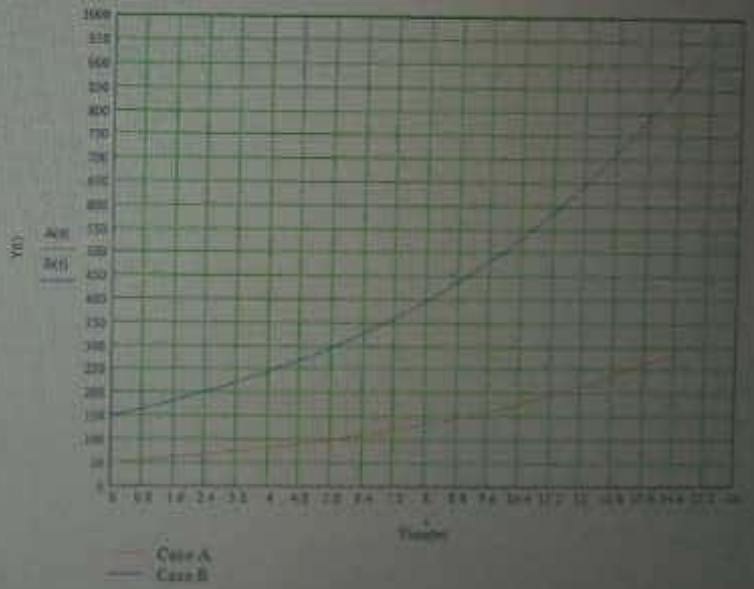
$A(t) := 50 \cdot \exp(0.122 \cdot t)$ $B(t) := 150 \cdot \exp(0.122 \cdot t)$

A(t) =

50
56.438
63.817
72.168
81.453
92.022
103.962
117.451
132.691
149.908
169.359
191.334
216.151
244.209
275.896
311.694

B(t) =

150
169.453
191.452
216.293
244.358
276.065
311.885
352.354
398.073
449.725
508.079
574.003
648.483
732.626
827.687
935.083



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~~18/ENG04~~ 18/ENG04/054
Electrical/Electronics

$y = y_0 e^{kt}$

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

A $\frac{y}{y_0} = e^{kt} = 3$ at $t = 9$

B $\frac{y}{y_0} = e^{kt} = 9$ at $t = 18$

$y_0 = 50$

$y_0 = 150$

$\therefore y = 50e^{kt}$

$y = 150e^{kt}$

A $\therefore 3 = e^{kt}$

$\ln 3 = kt$

$\ln 3 = 9k$

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

$9 = e^{kt}$

$\ln 9 = 18k$

$\frac{\ln 9}{18} = k$

$k = 0.122$

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

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