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18/ENG08/1018
Mechanical Engineering

y_0 = Inifial substance
y = Final substance

Formula = $y - y_0 e^{kt}$

$y = 3y$

$y/y_0 = e^{kt} = 3$ at $t = 9$

, $y = 3 \times y_0$

$y/y_0 = e^{kt} = 9$ at $t = 18$

$y_0 = 50$ ..... (i) ; $y = 50e^{kt}$

$y_0 = 150$ ----(ii) ; $y = 150\, e^{kt}$

e^{kt} = exponential (Konstant x t)

$e^{kt} = 3$

$\ln 3 = 9k$

$k = \frac{\ln 3}{9} = 0.1221$

$e^{kt} = 9$

$\ln 9 = 18k$

$k = \frac{\ln 9}{18} = 0.1221$

$y = 50e^{0.1221}$

$y = 50e^{0.1221}$

(Graph attatched to the next page)

$t := 0, 1 .. 15$

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

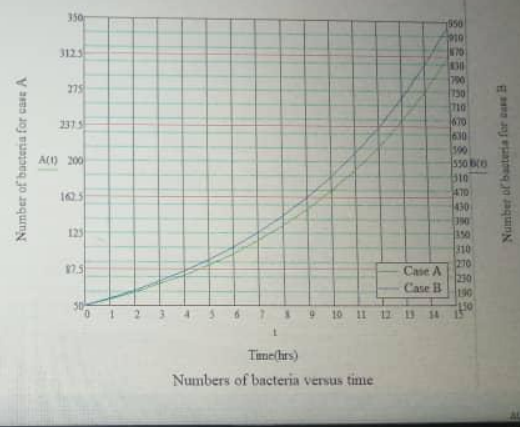
$B(t) := 150 \cdot \exp(0.122 \cdot t)$

$A(t) =$

50
56.488
63.817
72.098
81.453
92.022
103.962
117.451
132.691
149.908
169.359
191.334
216.161
244.209
275.896
311.694

$B(t) =$

150
169.463
191.452
216.293
244.358
276.065
311.885
352.354
398.073
449.725
508.078
574.003
648.483
732.626
827.687
935.083



Numbers of bacteria versus time

Press F1 for help.