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 COURSE: ENG 282 (ENGINEERING MATHS)
 ASSIGNMENT 4

FORMULA $\Rightarrow y = y_0 e^{kt}$ where $y_0 =$ Initial Substance
 $y = 3y_0$ $y =$ Final Substance

$\therefore y = 3$

y_0

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

y_0

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

y_0

A $y_0 = 50$ --- ①

B $y_0 = 150$ --- ②

$y = 50e^{kt}$ --- ③

$y = 150e^{kt}$ --- ④

$\ln 3 = kt$, $3 = e^{kt}$ where $e^{kt} =$ exponential

$\ln 3 = 9k$ $k =$ constant

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

9

$k = 0.122$

$e^{kt} = 9$

$\ln 9 = 18k$

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

18

$k = 0.122$

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

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

$$t = 0, 1, \dots, 15$$

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

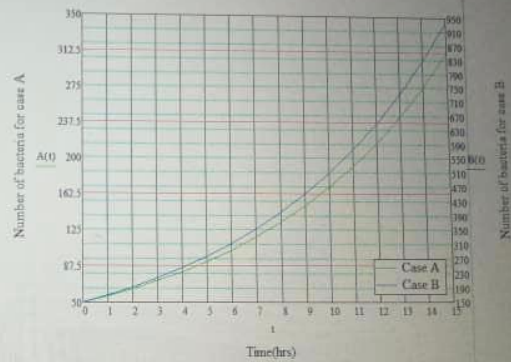
$$B(t) = 150 \exp(0.122 t)$$

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
276.965
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