Name: Adjugah Uvietobore Joshua
Matric No: 18/ENG05/007
Department: Mechatronics Engineering

$y = y_0 e^{kt}$

$y = 3y_0$; $y/y_0 = 3$

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

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

A - $y_0 = 50$ --(i)

B - $y_0 = 150$ --(ii)

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

$y = 150e^{kt}$ --(iv)

For A) $3 = e^{kt}$

Find the ln of ~~both~~ sides

$\ln 3 = kt$

$\ln 3 = k \times 9$

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

For B) $9 = e^{kt}$

Find the ln of both sides

$\ln 9 = k \times 18$

$\therefore k = \frac{\ln 9}{18} = 0.122$

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

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

$t := 0, 1 .. 15$

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

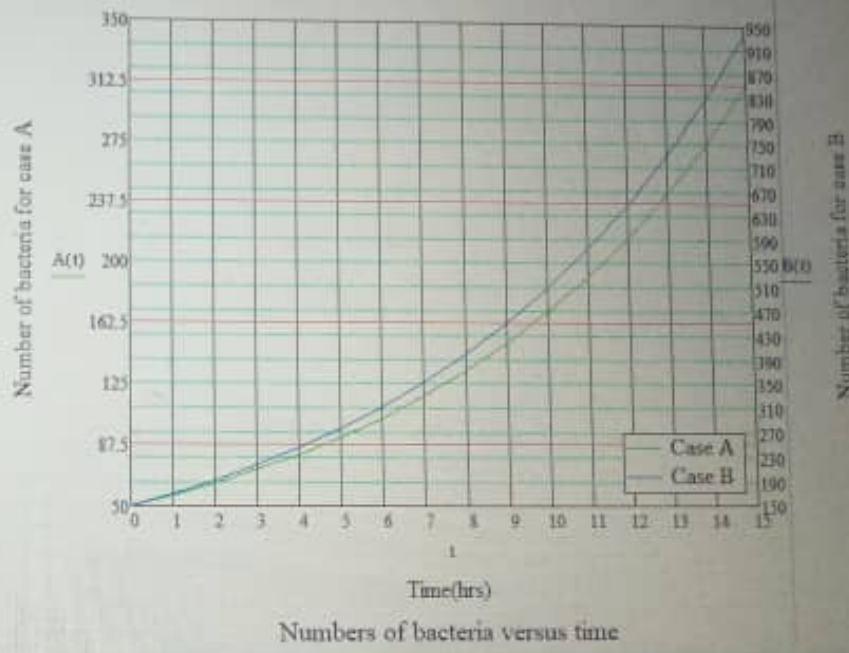
$A(t) =$

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

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

$B(t) =$

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