$y = y_0 e^{kt}$

$3y_0 = y_0 e^{kt}$

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

$\frac{y}{y_0} = 2$

$y_0 = e^{kt}$ $= 2$ at $t = 4$

a) $y = Ae^{kt}$

b) $y_0 = 50$ — i

b) $y_0 = 150$ — ii

$\therefore y = 50e^{kt}$ — iii

$y = 150e^{kt}$ — iv

a) $3 = e^{9k}$

$\ln 3 = 9k$

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

$k = 0.122$

$9 = e^{kt}$

$\ln 9 = kt$

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

$k = 0.122$

$\therefore y = 50e^{0.122t}$ — a

$\therefore y = 150e^{0.122t}$ — b

$t := 0,1..15$

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

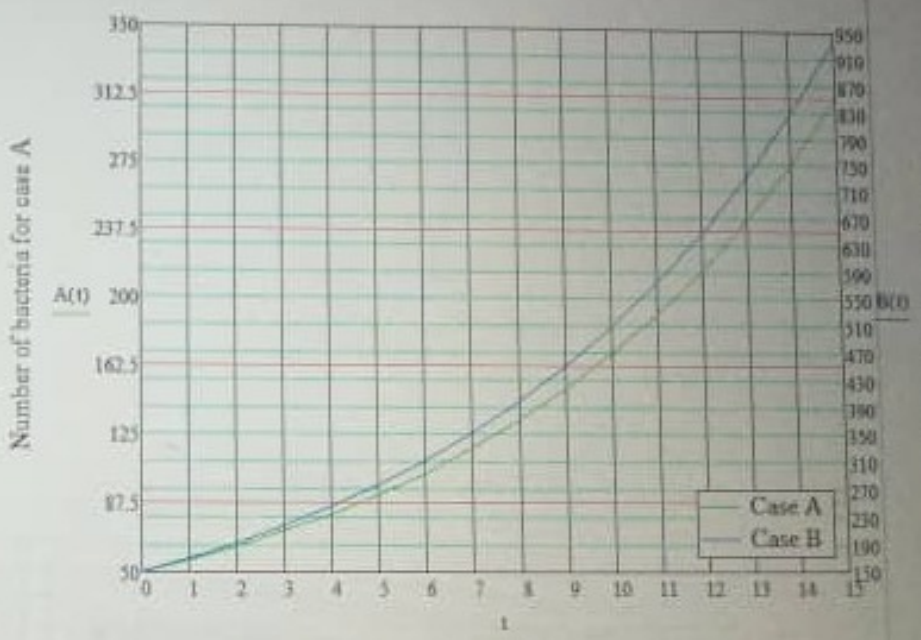
$B(t) := 150 \exp(0.122 \cdot t)$

$A(t) =$

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

for help.