Name: AMADI-DURU, C. Melvin

Mat No: 18/ENE04/013

MATH H/N

i) $SO = y_0 e^{kt}$ — (.) where y_0 = initial

where $t = 0$

$50 = y_0 e^{k(0)}$ — (ii)

$50 = y_0$ — (iii)

$y_0 = 50$ — (iv)

and

$y = 50e^{kt}$

in 9hrs, y is tripled

Let $t = 9$, $y = 50 \times 3 = 150$

$150 = 50 e^{k(9)}$

$150/50 = e^{k(9)}$

$3 = e^{9k}$

take ln of both sides

$\ln 3 = 9k$

$1.0986 = 9k$

$k = 0.1221 \approx 0.122$

$y = 50e^{0.122t}$ — function for case A

b) $150 = y_0 e^{k0}$

$y_0 = 150$

every 9hrs it's tripled $t = 9$, $y = 150 \times 3 = 450$

$450 = 150 e^{k(9)}$

$3 = e^{k9}$

$\ln 3 = \ln e^{k9}$

$1.0986 = 9k$

$k = 0.122$

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

Mathcad - [Untitled:1]

File Edit View Insert Format Tools Symbolics Window Help

Normal Arial 10 100%

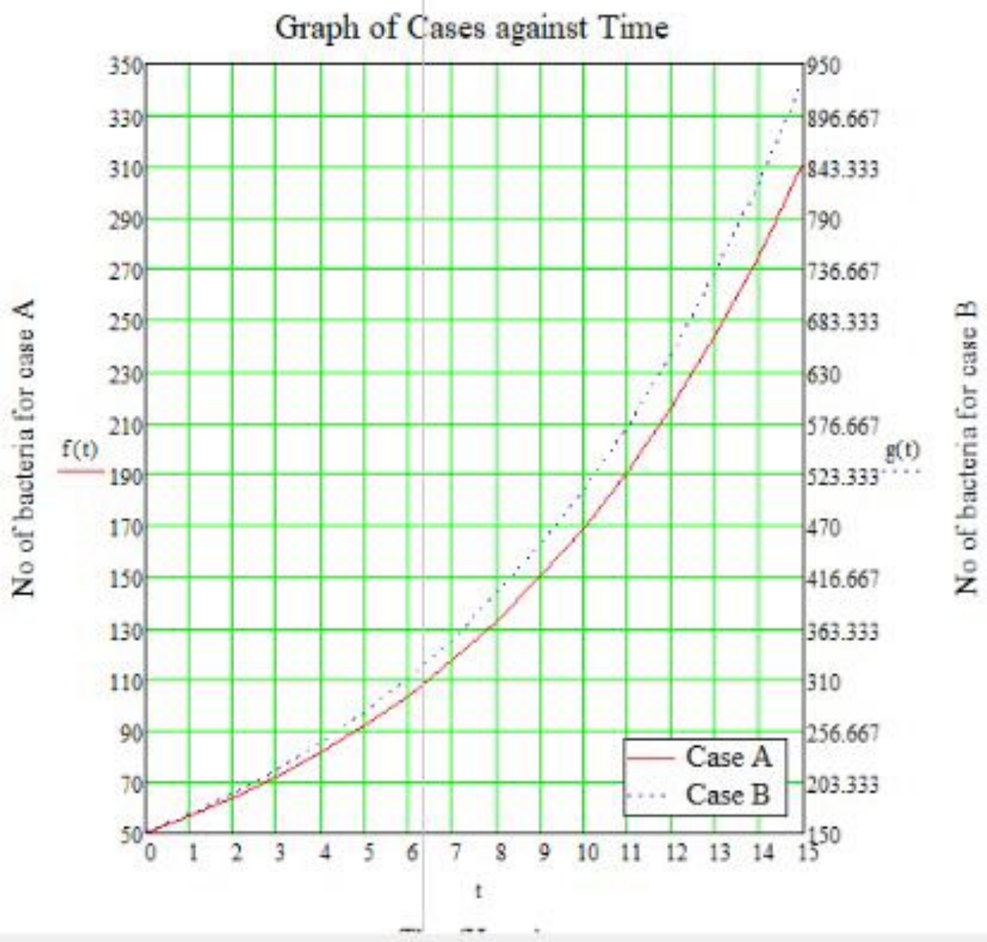
My Site Go

$t := 0, 1 .. 15$

$f(t) := 50 \cdot e^{(0.122 \cdot t)}$

$g(t) := 150 \cdot e^{(0.122 \cdot t)}$

f(t) =	g(t) =
50	150
56.488	169.463
63.817	191.452
72.098	216.293
81.453	244.358
92.022	276.065
103.962	311.885
117.451	352.354
132.691	398.073
149.908	449.725
169.359	508.078
191.334	574.003
216.161	648.483
244.209	732.626
275.896	827.687
311.694	935.083



AMADI – DURU, Melvin

Elect – Elect

18 – eng04 – 013

Graph

Matrix

Press F1 for help.

AUTO NUM Page 1

Desktop 12:25 PM 4/19/2020