Normal | Arial | 10 | B I U

$t := 0..15$

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

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

t =	y(t) =	g(t) =
0	50	150
1	56.488	169.463
2	63.817	191.452
3	72.098	216.293
4	81.453	244.358
5	92.022	276.065
6	103.962	311.885
7	117.451	352.354
8	132.691	398.073
9	149.908	449.725
10	169.359	508.078
11	191.334	574.003
12	216.161	648.483
13	244.209	732.626
14	275.896	827.687
15	311.694	935.083

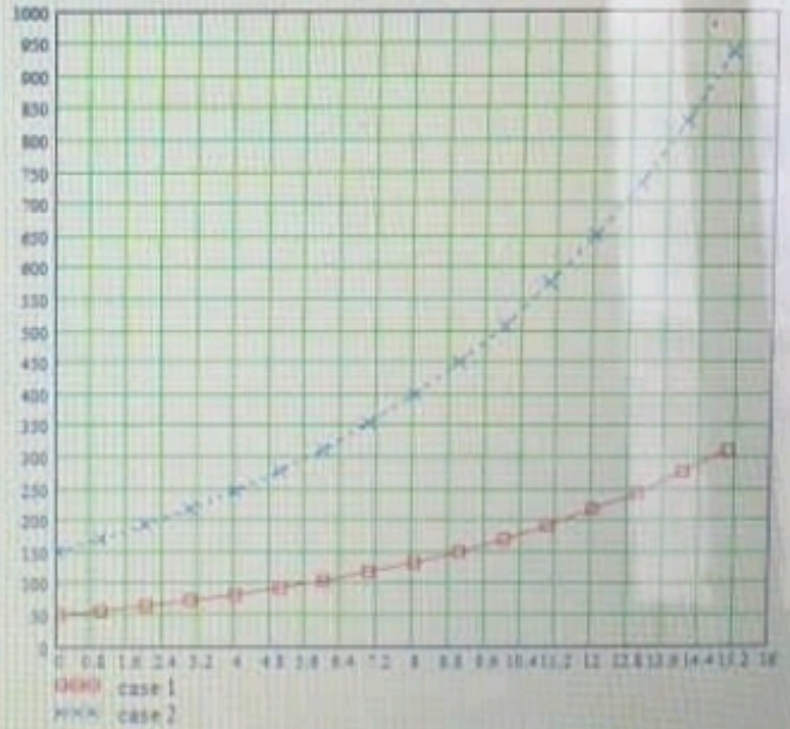

Figure 1: number of bacteria vs time

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Mechatronics

$y = y_0 e^{kt}$

$y = 3y_0 ; \frac{y}{y_0} = 3$

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

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

$\therefore A \cdot y_0 = 50 \quad \ldots (1)$

$B\ y_0 = 150 \quad \ldots (2)$

$\therefore y = 150 e^{kt} \quad \ldots (3)$

$y = 150 e^{kt} \quad \ldots (4)$

$\ln 3 = kt$

$\ln 3 = 9k$

$k = 0.122$

$9 = e^{kt}$

$k = 0.122$

$\ln 9 = 18k$

$\frac{\ln 4}{18} = k$

$k = 0.122$

$y = 150 e^{0.22t}$

$\therefore y = 150 e^{1.22t}$