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DEPARTMENT: Mechatronics Engineering

COURSE: ENG 282 Assignment 4

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18/ENG05/056
Mechatronics Engineering
ENG282 Assignment

At t = 9,
$y_1/y_0 = 3$ ---- i

and at t = 18,
$y_2/y_0 = 9$ ---- ii

recall,
$y = y_0 * 3^{kt}$ ----- iii

from i,
$3 = 3^{kt}$
$kt = 1$
(t = 9 ---- i)
therefore,
$k = 1/9$

so when $y_0 = 50$,
$y(t) = 50 * 3^{t/9}$

and when $y_0 = 150$,
$g(t) = 150 * 3^{t/9}$

for values of time ranging from 1 to 15 hours

$t := 1..15$

t =	y(t) =	g(t) =
1	56.492	169.475
2	63.826	191.478
3	72.112	216.337
4	81.475	244.425
5	92.053	276.159
6	104.004	312.013
7	117.507	352.521
8	132.763	398.29
9	150	450
10	169.475	508.424
11	191.478	574.433
12	216.337	649.012
13	244.425	733.274
14	276.159	828.476
15	312.013	936.038

$y(t) := 50 \cdot 3^{\frac{t}{9}}$ $g(t) := 150 \cdot 3^{\frac{t}{9}}$