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

let g(t) represent y(t)

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

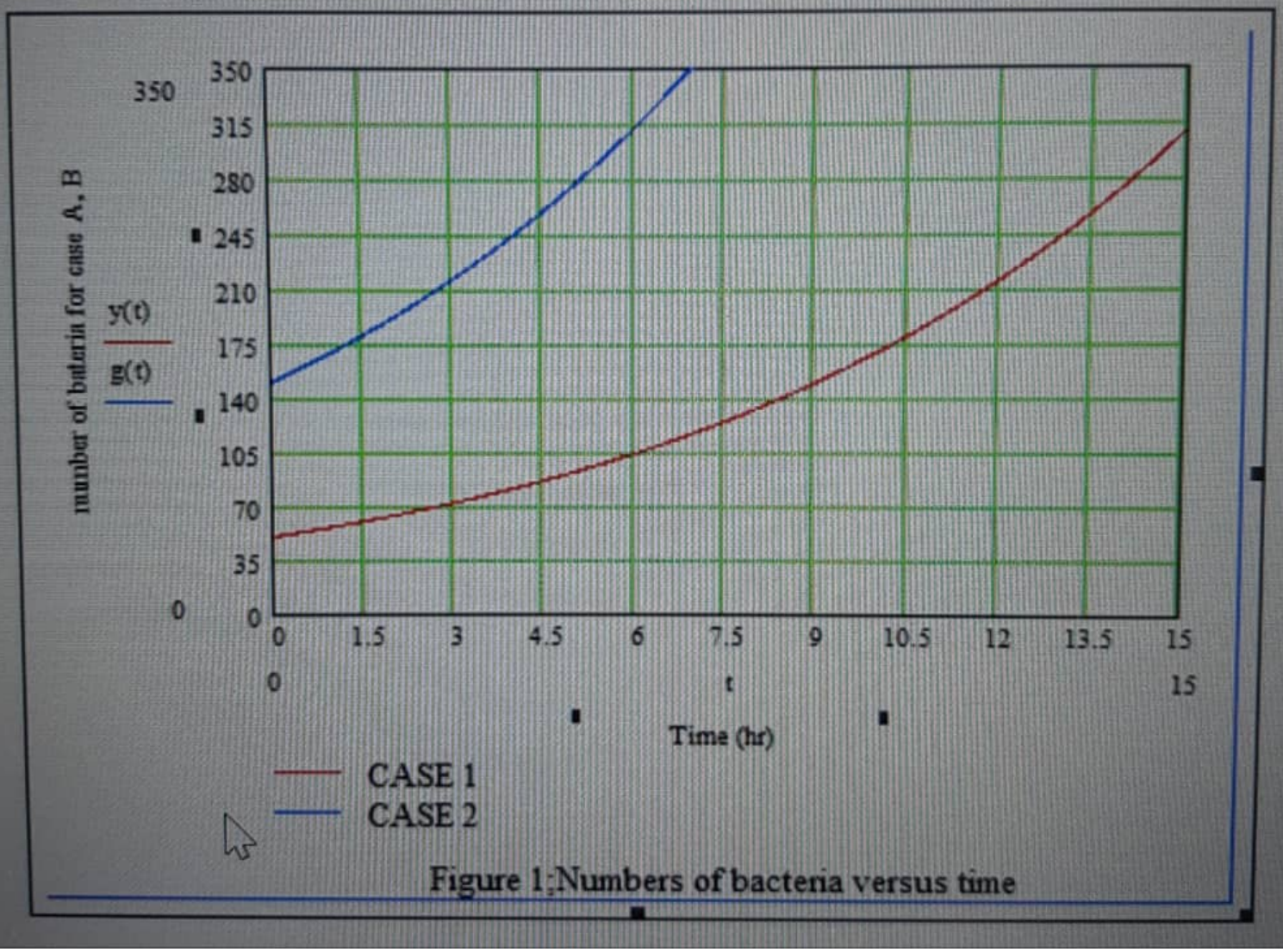

Figure 1: Numbers of bacteria versus time

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Case A = 50 — Case B = 15

$\frac{y}{y_0} = 3$ for every 9 hours. $t = 9$

$\frac{y}{y_0} = ?$ when $t = 18$

$y = y_0 e^{kt}$ ---①

$y = 50e^{kt}$ --②

$y = 150e^{kt}$ --③

from equ 1

$\frac{y}{y_0} = e^{kt}$

$3 = e^{kt}$

$3 = e^{k9}$

$\ln 3 = k9$

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

$k = 0.122$

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

$y = 150e^{0.122t}$