Mathcad Professional - [Untitled:2]

File Edit View Insert Format Math Symbolics Window Help

Normal Arial 10

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

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

$0 \le t \le 15$

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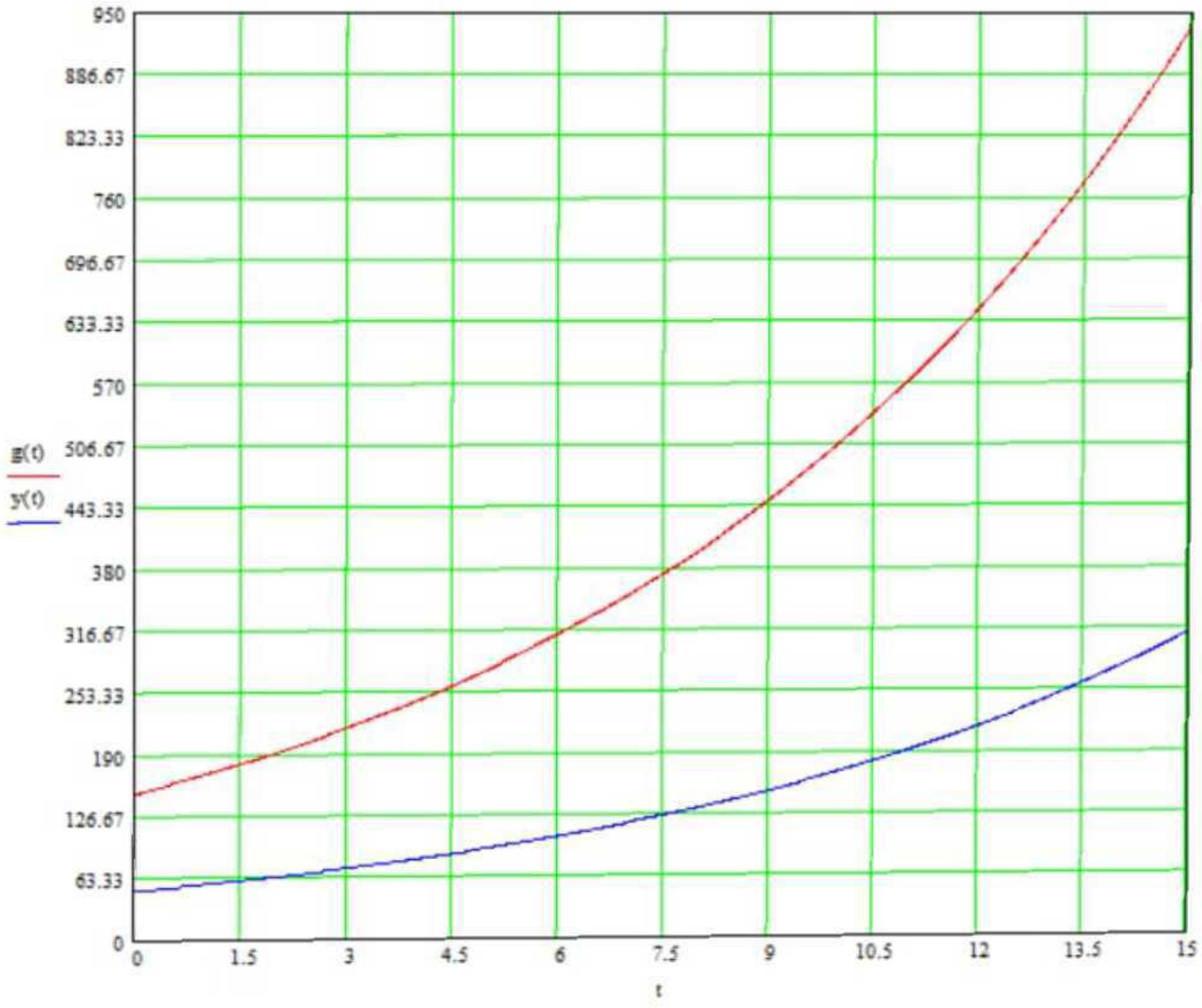

Press F1 for help.

$y = y_0 e^{kt}$

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

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

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

$y_0 = 50$ - i

$y_0 = 150$ - ii

$y = 50e^{kt}$ - iii

$y = 150e^{kt}$ - equation (iv)

$\therefore 3 = e^{kt}$

$\ln 3 = \ln e^{k(9)}$

$\ln 3 = k9$

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

$3 = e^{kt}$

$\ln 3 = \ln e^{k(9)}$

$\ln 3 = k9$

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

$K = \frac{\ln 3}{9} = 0.122$

where;

$y = 50e^{0.122t}$ - v

$y = 150e^{0.122t}$ - vi