

ELECT/ELECT

1) $y_0 = \text{initial}, t=0$
 $50 = y_0 e^{kt} \quad \text{--- (1)}$
 $50 = y_0 e^{k(0)} \quad \text{--- (2)}$
 $50 = y_0 \quad \text{--- (3)}$
 $y_0 = 50 \quad \text{--- (4)}$

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

∵ y is tripled in 9 hrs

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

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

$$\frac{150}{50} = e^{9k}$$

$$3 = e^{9k}$$

taking \ln of both sides

$$\ln 3 = 9k$$

$$1.0986 = 9k$$

$$\therefore k = 0.122 \quad \therefore y = 50e^{0.122t} = f(t)$$

$$150 = y_0 e^{k(9)}$$

$$y_0 = 150$$

again for every 9 hrs ~~the~~ y is tripled by 3 = $150 \times 3 = 450$

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

$$\frac{450}{150} = e^{9k}$$

$$3 = e^{9k} \Rightarrow \text{Taking } \ln \text{ of both sides}$$

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

$$1.0986 = 9k$$

$$k = 0.122$$

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

Normal Arial 10 B I U $\frac{1}{x}$ x^2 x_2

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) =

50
56.488
63.817
72.098
81.453
92.022
103.962
117.451
132.691
149.908
169.359
191.334
216.161
244.209
275.896
311.694

g(t) =

150
169.463
191.452
216.293
244.358
276.065
311.885
352.354
398.073
449.725
508.078
574.003
648.483
732.626
827.687
935.083

