

20-04-2010

JOHN EDWIN ARPAN  
18/EN9 061083  
MECHANICAL ENGR.  
EN9 282.

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

$$y = 3y_0$$

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

$$(a) \frac{y}{y_0} = e^{kt} = 3 \text{ at } t = 9$$

$$(b) \frac{y}{y_0} = e^{kt} = 9 \text{ at } t = 18$$

$$(a) \frac{y}{y_0} = 3 \text{ at } t = 9 \text{ --- (I)}$$

$$(b) \frac{y}{y_0} = 9 \text{ at } t = 18 \text{ --- (II)}$$

$$50y = 50e^{kt} \text{ --- (III)}$$

$$y = 150e^{kt} \text{ --- (IV)}$$

$$\ln 3 = kt$$

$$\ln 3 = 9k$$

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

$$k = 0.122$$

$$9 = e^{kt}$$

$$\ln 9 = 18k$$

$$k = \frac{\ln 9}{18}$$

$$k = 0.122$$

$$y = 50e^{0.122t} \text{ --- (a)}$$

$$\dots y = 150e^{0.122t} \text{ --- (b)}$$

$$i = 0.1113$$

$$A(t) = 50 \cdot \exp(0.1113 \cdot t)$$

$$B(t) = 150 \cdot \exp(0.1113 \cdot t)$$

A(t) =

50
56.488
63.817
72.088
81.453
92.022
103.962
117.451
132.684
149.908
168.259
187.334
206.161
244.209
275.890
311.694

B(t) =

150
169.463
191.452
216.263
244.358
276.065
311.885
352.354
398.073
449.726
506.078
574.003
648.483
732.826
827.687
935.983

