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Biomedical Engineering 18/ENCS/016

Eng 202 Assignment 4

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

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

$$A \quad \frac{y}{y_0} = e^{kt} = 3 \quad \text{at } t=9$$

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

$$\therefore Ay_0 = 50 \quad \text{--- (i)}$$

$$By_0 = 150 \quad \text{--- (ii)}$$

$$\therefore y = 50 e^{kt} \quad \text{--- (i)}$$

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

$$A \quad \text{--- } 3 = e^{kt}$$

$$\ln 3 = kt$$

$$\ln 3 = 9k$$

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

$$k = 0.122$$

$$9 = e^{18k}$$

$$\ln 9 = 18k$$

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

$$18$$

$$k = 0.122$$

$$\therefore y = 50 e^{0.122t} \quad \text{--- A}$$

$$\therefore y = 150 e^{0.122t} \quad \text{--- B}$$

$$r = 0.1145$$

$$A(t) = 50 \exp(0.122 t)$$

$$B(t) = 150 \exp(0.122 t)$$

A(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

B(t) =

150
169.461
191.452
216.293
244.358
276.065
311.685
352.354
398.073
449.725
508.078
574.003
648.483
732.626
827.687
935.083

