

ADENIYI MOLOLUWA EMMANUEL

18/ENG05/005

ENG 282

ASSIGNMENT

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

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

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

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

$$y_0 = 50 - i$$

$$y_0 = 150 - ii$$

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

$$y = 150e^{kt} \text{ --- iv}$$

$$3 = e^{kt}$$

$$\ln 3 = \ln e^{kt}$$

$$\ln 3 = kt$$

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

$$k = 0.122$$

$$9 = e^{kt} \quad 9 = e^{kt}$$

$$\ln 9 = \ln e^{kt}$$

$$\ln 9 = k(18)$$

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

$$k = 0.122$$

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

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

t = 0, 1, 15

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

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

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
169.463
191.452
216.293
244.358
276.965
311.885
352.354
398.073
449.725
508.078
574.003
648.483
732.626
827.687
935.083

