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181 RANGOG LOA
MECHANICAL ENGINEERING
MECH ASST

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

$$3 = 3y_0 \quad \therefore \quad \frac{1}{3}y_0 = 3$$

$$\frac{y}{y_0} = e^{kt} = 3 \quad \text{at } t = 9 \quad \dots \text{ (1)}$$

$$\frac{y}{y_0} = e^{kt} = 1 \quad \text{at } t = 18 \quad \dots \text{ (2)}$$

$$A_{y_0} = 50 \quad \dots \text{ (1)}$$

$$B_{y_0} = 150 \quad \dots \text{ (2)}$$

$$y = 50e^{kt} \quad \dots \text{ (3)}$$

$$y = 150e^{kt} \quad \dots \text{ (4)}$$

$$\ln 3 = kt$$

$$\ln 9 = 18k$$

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

$$9 = e^{kt}$$

$$\ln 9 = 18k$$

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

$$k = 0.122$$

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

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

$$t = 0, 1, 15$$

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

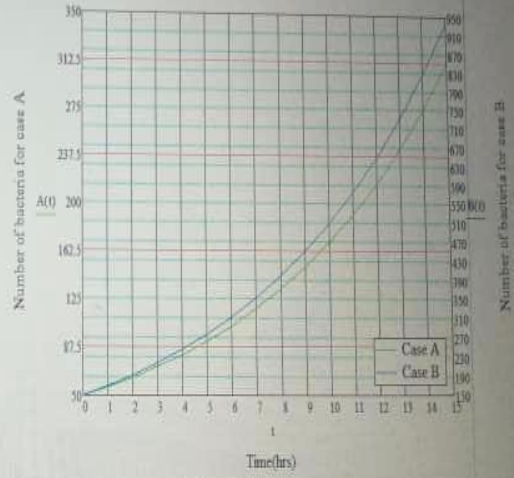
$$B(t) = 150 \exp(0.122 t)$$

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
169.463
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



Numbers of bacteria versus time