

CHINA WISDOM ENVIKITE
18/ENG101/026
Elect/Elect
EN1282

$$\text{Using } y = y_0 e^{kt}$$

for Case A

$$\text{at } t=0, y=50$$

$$\therefore 50 = y_0 e^{k(0)}$$

$$50 = y_0 \times 1$$

$$y_0 = 50$$

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

but the bacteria tripled after 9 hours

$$\text{after 9 hours } y = 150$$

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

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

$$\ln 3 = 9k$$

$$k = \frac{0.1221}{9} = 0.1221(1)$$

$$\therefore y = 50 e^{0.1221(t)}$$

for Case B

$$\text{at } t=0, y=150$$

$$150 = y_0$$

$$\text{and at } t=9, y=450$$

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

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

$$\ln 3 = 9k$$

$$k = \frac{0.1221}{9} = 0.1221(1)$$

$$\therefore y = 150 e^{0.1221(t)}$$

thruples

t = 0, 1, 15

CHIMA WISDOM ENYICHE

18
ENG04
025

$y1(t) := 50 \cdot e^{(0.122 \cdot t)}$ $y2(t) := 150 \cdot e^{(0.122 \cdot t)}$

y1(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

y2(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

