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

$$y = 3y_0, \quad y = 3$$

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

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

$$A - y_0 = 50 \dots (i)$$

$$B - y_0 = 150 \dots (ii)$$

$$y = 50 e^{kt} \dots (i)$$

$$y = 150 e^{kt} \dots (ii)$$

$$A - 3 = e^{kt}$$

$$\ln 3 = kt$$

$$\ln 3 = 9k$$

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

$$k = 0.122$$

$$B - 9 = e^{kt}$$

$$\ln 9 = 18k$$

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

$$k = 0.122$$

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

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

where

$y(t)$  = Number of bacteria for case A

$y(t)$  = Number of bacteria for case B

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$$y(t) := 50e^{0.122t} \quad g(t) := 150e^{0.122t}$$

$$t := 0, 0.1.. 15$$

