

## Homework 21 Final Answers

1. Solution  $y(t) = 100 \cdot 9^{\frac{t}{2}}$  OR  $100 \cdot 3^t$

After 5 hours there are 24,300 bacteria present.

The population reaches 10,000 after  $\approx 4.19$  hours

2. Solution  $y(t) = 12 \cdot (120)^{\frac{t}{4}}$

After 12 months there are 20,736,000 cases

There will be 172,800 cases after 8 hours

3. Solution  $V(t) = 25,000 \cdot (.81)^{\frac{t}{2}}$

$$k = \frac{\ln(.81)}{2} \approx -0.105 \quad \text{Explain why } k\text{'s value is negative}$$

The car will be valued at roughly \$10,762 after 8 years

4. Solution  $y(t) = y(0) \cdot 2^{\frac{-t}{5730}}$

Death occurred  $\approx 19,035$  years ago.