

Class prep quiz on section 3.8, Stewart's Calculus (8th ed.)

- Which of the following quantities does **NOT** necessarily satisfy an equation of the form $y(t) = Ce^{kt}$ for some constants C and k ?
 - The amount $A(t)$ of money in an interest-bearing account, compounded annually
 - The size $P(t)$ of an exponentially growing population
 - The mass $m(t)$ of an exponentially decaying radioactive substance
 - The temperature $T(t)$ of a warm object cooling in a room
- The population of the small city of Bingore is growing exponentially. One year after Bingore is founded, its population is 20,000, and five years after it is founded, its population is 60,000. What is the population of Bingore six years after it is founded, rounded to the nearest 1,000 people?
 - 79,000
 - 68,000
 - 70,000
 - None of the above
- If we know the half-life h of a radioactively decaying substance, what can we determine about the mass $m(t)$ of the substance at time t ?
 - We can solve for the constant k in $m(t) = m_0e^{kt}$.
 - We can solve for t in $h = m_0e^{kt}$.
 - We can solve for the constant m_0 in $m(t) = m_0e^{kt}$.
 - None of the above.
- An object whose temperature is 98°F is placed in a room whose temperature is 70°F . After 1 minute, the object's temperature is 93°F . What will the object's temperature be after 3 minutes, rounded to the nearest tenth of a degree?
 - 13.0°F
 - 85.5°F
 - 83.0°F
 - 15.5°F