

14. A cup of green tea contains 35 milligrams of caffeine. The average teen can eliminate approximately 12.5% of the caffeine from their system per hour.
- a) Write an exponential function to represent the amount of caffeine remaining after drinking a cup of green tea.

b) Find the amount of caffeine in a teenager's body 3 hours after drinking a cup of green tea.
Round to the nearest hundredth.

c) How long will it take for the caffeine level to be 5 mg?
Round to the nearest tenth.

15. From 1990 to 2000, the population of California can be modeled by $P = 29,816,591(1.0128)^t$ where t is the number of years since 1990. Estimate the population in 2007.

16. You buy a new car for \$22,500. The value of the car decreases by 25% each year. Write an exponential decay model giving the car's value V (in dollars) after t years. What is the value of the car after three years?

17. A virus spreads through a network of computers such that each minute, 25% more computers are infected. If the virus began at only one computer, find the model for this situation and find the number of computers affected after 40 minutes.