

1. At the start of an experiment there are 100 bacteria. If the bacteria follow an exponential growth pattern with a rate 0.02, what will the population be after 5 hours? How long will it take for the population to double?
2. Suppose that the population of a colony of bacteria increases exponentially. At the start of an experiment, there are 6,000 bacteria, and one hour later, the population has increased to 6,400. How long will it take for the population to reach 10,000? Round your answer to the nearest hour.
3. The half-life of Plutonium-239 is 24,000 years. If 10 grams are present now, how long will it take until only 10% of the original sample remains? Round your answer to the nearest 10,000th.