

Growth and Decay Review

Example #1: At any time $t \geq 0$ in days, the rate of growth of a bacteria population is given by $\frac{dy}{dt} = ky$, where k is a constant and y is the number of bacteria present. The initial population is 1000 and the population triples during the first 5 days.

A) Write an expression for y at any time $t \geq 0$.

B) By what factor will the population have increased in the first 10 days?

C) At what time will the population have increased by a factor of 6?

Example #2: Radium decays exponentially and has a half-life of approximately 1600 years.

A) Create a model that describes the amount remaining from 50 milligrams.

B) When will there be 20 mg left?