

Math 2410 Section 3.1 Supplemental

Example 1

After 15 years 0.043% of the initial amount A_0 of plutonium has disintegrated. Find the half-life of this isotope if the rate of disintegration is proportional to the amount remaining.

Example 2

When a cake is removed from an oven, its temperature is measured at 300F. Three minutes later its temperature is 200F. How long will it take for the cake to cool off to 80F if room temperature is 70F.

Example 3

A 100-volt electromotive force is applied to an RC-series circuit in which the resistance is 100 ohms, and the capacitance is 1 farad. Find the charge $q(t)$ on the capacitor if $i(0) = 1$. Determine the charge as $t \rightarrow \infty$.