

Problem Set Four

Exercises

4.6: 4, 5, 15, **19**, **25**, **43**

7.1: **21**, 34, **35**, 43, **56**

7.2: 10, **11**, 13, 16, **22**, **27**

Problems

The United States Department of Energy is currently building the Yucca Mountain storage site for radioactive waste in Nevada. As the radioactivity leaks out of the site, the material will decay, reducing the risk to the local population. Suppose that the exposure to radioactivity is given by

$$E(t) = t2^{-t/2000}$$

in rad/yr, where t is time in years. (The second factor is due to decay of the material; the first due to the amount which has leaked out at time t .)

Integrate $E(t)$ from $t = 50$ to $t = 100$ to find the exposure to a man who farms nearby between 50 and 100 years after the material is stored.