

Math 2260 HW #6

Due 10:10 AM Friday, February 17

Reading: Hass §8.1–8.2

Problems: Do the assignment “HW6” on WebWork. In addition, write up solutions to the following problems and hand in your solutions in class on Friday.

1. A lab receives a sample of polonium-210, which has a half-life of 139 days. The sample will be effectively useless by the time 95% percent of the radioactive nuclei present when the sample arrived have decayed. For how long will the lab be able to use the polonium?
2. An aluminum beam was brought from the outside cold into a machine shop where the temperature was held at 65°F. After 10 minutes, the beam warmed to 35°F, and after another 10 minutes it was 50°F. What was the beam’s initial temperature?
3. Evaluate the indefinite integral

$$\int x^2 e^{-x} dx.$$