Homework 18: The Standard Normal Distribution

1. Use a standard normal table to calculate $\int_{-.44}^{1.33} e^{-z^2/2}\,dz$.

2. Let Z be a standard normal random variable. Find the following probabilities:
   (a) $P(0 \leq Z \leq 2.07)$
   (b) $P(Z > -1.06)$
   (c) $P(Z \leq -2.33)$
   (d) $P(-.33 \leq Z \leq 1.2)$

3. Assume that Z is a standard normal random variable. For what values of z are the following statements true?
   (a) $P(Z \leq z) = 0.33$
   (b) $P(-1.00 \leq Z \leq z) = 0.564$
   (c) $P(-z \leq Z \leq z) = 0.8$

4. An Arctic weather station has three electronic wind gauges. Only one is used at any given time. The lifetime of each guage is exponentially distributed wih a mean of one thousand hours. What is the pdf of Y, the time until the last gauge wears out?